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DEVELOPING COUNTRY STAKES

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DIANA TUSSIE

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The Environment and International Trade Negotiations

Developing Country Stakes

Edited by

Diana Tussie
Director of the Research Program on International Economic Institutions, and Senior Research Fellow, FLACSO, Buenos Aires

in association with
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to whom I am deeply indebted

in memory of her spirit and pioneering mind

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DIANA TUSSIE

List of Abbreviations

AEB	Associaçáo do Comércio Exterior do Brasil
AFTA	Asean Free Trade Agreement
APEC	Asia–Pacific Economic Cooperation
ASA	Association of South East Asia
ASEAN	Association of South East Asian Nations
ASEP	Asean Environment Program
ASOEN	Asean Senior Officials on the Environment
ASPAC	Asian–Pacific Council
BNDES	Banco Nacional de Desenvolvimento Econômico e Social
BS	British Standard
CAP	Common Agricultural Policy
CET	Common External Tariff
CFC	Chlorofluorocarbon
CGG	Commission on Global Governance
CITES	Convention on International Trade in Endangered Species
CINI	Confederaçao Nacional da Indústria
EAEC	East Asia Economic Caucus
EC	European Community
ECF	Elemental Chlorine-free
ECSC	European Coal and Steel Community
EEC	European Economic Community
EFPs	Environmental Friendly Products
EIP	Environmental Improvement Projects
EMS	Environmental Management System
EPA	Environmental Protection Agency
ESA	Environmental Side-Agreement
EU	European Union
FSC	Forest Stewardship Council
FTAA	Free Trade Area of the Americas
GANA	Gmpo de Apoio à Normalizaçáo Ambiental
GATT	General Agreement on Tariffs and Trade
IEA	International Environmental Agreement
ILO	International Labor Organization
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
LCA	Life-Cycle Assessment
LSMP	Land-Sourced Marine Pollution

MEA	Multilateral Environment Agreement
MERCOSUR	Mercado Comun Del Sur
MOP	meeting of the parties
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
NRDC	National Resources Defence Council
ODS	Ozone-Depleting Substance
OECD	Organization for Economic Cooperation and Development
PPM	Process and Production Method
PPP	"Polluters Pays Principle"
PTA	Preferential Trade Agreement
REMA	Reunión Especializada De Medio Ambiente
SADCC	Southern African Development Cooperation Conference
SAGE	Strategic Advisory Group on the Environment
SAP	Structural Adjustment Programme
SCM	Subsidies and Countervailing Measures
SCS	Scientific Certification Systems
SEATO	South-East Asia Treaty Organization
SMEs	Small and Medium Enterprises
SPM	Sanitary and Phytosanitary Measures
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
TCF	Totally Chlorine-Free
TEAP	Technology and Economic Assessment Panel
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	US Agency for International Development
VMU	Voluntary Market Upgrading
WTO	World Trade Organization

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1 Introduction

Diana Tussie

The issue of environmental sustainability (pollution and resource depletion) is likely to play an increasingly prominent role in international negotiations in the twenty-first century. Economic development has led not only to increased pressure on national resources throughout the world, but also to an increasing use of shared resources. Moreover, the increased flow of goods and capital across borders, as a result of widespread trade liberalization, has led to the growing perception in some countries of a shared global responsibility for environmental resources. However, while there may be more agreement today than ever before regarding both the benefits of openness to trade and the need for expanding environmental safeguards, important differences remain between countries in terms of the pace of policy reforms, the forum in which such reforms should be negotiated and the linkage between trade and the protection of the environment. As countries come into closer contact with each other, and become more economically interdependent, environmental issues emerge as important concerns to be addressed. The asymmetries created by environmental policies may modify relative competitiveness between countries.

Together, these factors have contributed to the emergence of a trade-and-environment agenda, which contains three main issues: first, the effect of trade liberalization on the environment; second, the use of trade policy to solve environmental degradation; and third, the sort of international regimes that can contribute to making the trade and environment linkages compatible with development needs. The main concerns of developing countries in this respect relate, on one hand, to how market access can be achieved and preserved without further degradation of the environment, and, on the other, to how the environment can be protected without affecting growth rates and the liberalization of trade.

The essential problem to be addressed by the trade-and-environment agenda is the linking of the impact of trade on the environment, and the appropriateness of using trade policy for environmental purposes. Trade tends to have a positive effect in terms of industry, because it allows access to improved technology capable of dealing with effluents and

emissions caused by industrial activity. However, the impact of trade on environment tends to be negative in terms of natural resources, because trade accelerates overuse.

The General Agreement on Tariffs and Trade (GATT) and now the World Trade Organization (WTO) clearly serve as a negotiating umbrella for the trade globalization process, but the linking of environmental concerns with trade measures remains an issue of contention. Many developing countries believe themselves to be at a disadvantage in such fora, owing to the size of their economies relative to the advanced industrial economies and to their greater vulnerability in a specific trade relationship. The perception that the environmental clause in NAFTA imposed new and stricter environmental standards on Mexico as a precondition of market access is seen in many parts of the world as an ominous harbinger for future international negotiations on environmental issues, with the wealthiest industrialized countries dictating the terms of new trade pacts to the disadvantage of less developed nations.

To avoid such outcomes, many non-OECD countries are seeking alternative fora in which to address environmental concerns, whether these refer to environmental protection or to the achievement of a level playing field. Many countries in Asia and Latin America have protested vigorously against the linking of issues such as the environment to trade. Such issues, many governments argue, would be better discussed within institutions dedicated specifically to environmental concerns and where, presumably, market access cannot be turned into an instrument of sanctions. The size of a state's economy and its involvement in world trade would not interfere with genuine environmental issues in question. While the WTO oversees trade policies, it cannot regulate environmental issues on its own. Regional agreements and international environmental agreements must be considered as a mechanism for the enforcement of environmental regulations.

The institutional framework is a central point that has to take into account the inequalities of the international system. These inequalities are reflected in the international environmental agenda. In fact, two agendas can be recognized. The "Northern" or "green" agenda is constituted by climate change, bio-diversity, deforestation and fisheries issues. The "Southern" or "brown" agenda includes drinking water, poverty alleviation, trade, market access and the need for technology transfer and greater flows of development assistance. While the North sees pollution as a serious threat, the South sees it as a serious impediment. The underlying debate is about sustainable development. While developing

countries see it as a way of alleviating poverty and achieving economic development in the immediate future, developed countries see it as a way of meeting the needs of the present without compromising the ability of future generations to meet their own needs, putting the focus of attention on integrating longer-term policy perspectives with economic and environmental decision-making. The main difference between the Northern and Southern perspectives is on "timing". Sustainable development also requires that environmental degradation is anticipated and minimized, rather than reacted to after the damage has been done. The emergence of two different environmental agendas between North and South should not lead to the emergence of two different markets; that is, an environmentally-friendly market opposed to a non-environmentally-controlled market.

This book, then, analyses these aspects of the relationship between trade liberalization and environmental policies, with special emphasis on North–South economic relations. It is an attempt to analyse the trade-and-environment agenda looking at the effects of trade liberalization and market access on the environment. The first part comprises four sectoral case studies – timber, agriculture, voluntary market upgrading initiatives in industry, and the experience of South African exporters with international environmental pressures. The second part comprises chapters on the general issues of process and production methods and on the insights offered by trade theory. The final part looks at issues of international environmental governance, with particular emphasis on the regional dimension. This section includes chapters on Mercosur, ASEAN and NAFTA, as well as the Montreal Protocol and developing countries.

The volume begins with two chapters that analyse the cases of two sectors of paramount importance in developing countries – forestry and agriculture – that can be subject to unsustainable practices in the face of fast export growth. Raúl Sáez focuses on the international trade aspects of timber extraction, dissecting the issues related to trade, multilateral trade rules, environmental protection and negotiations on trade and the environment from the perspective of a specific renewable natural resource that is traded, and with particular reference to the Austrian–Malaysian case. He argues that the focal points of the present debate are the relationship between international trade in timber and deforestation, and the suggestion of imposing trade restrictions to reduce the rate of deforestation. The restrictions on exports or imports of timber must be compatible with multilateral trade rules, because they run the risk of violating the principle of non-discrimination. The chapter also shows that

eco-labelling can act as a barrier to trade in several ways, and that international labels defined on the basis of consensus and agreement between producing and consuming countries are likely to be both more successful and less damaging to international trade.

Graciela Gutman takes up the issue of what the trade expansion challenge means for developing countries. Her central point is that trade has three types of impact on agricultural production: a change in the scale of production, a change in its composition and a shift to new technologies. While the last of these will have an unambiguously beneficial impact on the environment, the first two may lead to new pressures on the use of natural resources. Trade liberalization in developed countries is expected to reduce the intensity of production and the incentives to use resources wastefully. This will benefit the environment in developed countries, while leading to an expansion of production in developing countries to take up the slack in world output. However, if adequate environmental policy instruments are not introduced in developing countries to accompany the changes in magnitude and composition of production then the risk of depleting the natural resource base is indeed very high. Thus, leaving the end result in the hands of unfettered market forces is not appropriate, and assessing the possible outcome of these effects on agriculture requires empirical research and a case-by-case approach. The ideal pricing approach requires an adequate assessment of the environmental degradation and taxation of those who cause the damage. But such an approach is not feasible in agriculture for several reasons: first, it is very difficult to link polluters with emissions; second, pollution is typically diffuse; and third, it may not be perceptible in the short term. In this light, Gutman suggests that the use of blunter instruments or a combination of pricing and regulation would be both more practical and more effective.

Moving from agriculture to industry, Pedro Da Motta Veiga analyses market-based initiatives that can affect exports from developing countries, particularly the establishment of eco-labelling schemes in the European Union, and the design of environmental management standards by the International Organization for Standardization (the ISO 14000 series). Although these are market initiatives, he highlights the potential for trade discrimination as a result of voluntary market upgrading arrangements. He suggests that standards and regulations may have, in principle, a high potential for discrimination across countries, even though their criteria are aimed at governing performance, and not design. The standard-setting process can be easily captured by firms and can become a source of

rent-seeking. As standard-setting schemes proliferate, they increase transaction costs for foreign producers. However, da Motta Veiga's evidence, like Bethlehem's in the following chapter, suggests that exporting companies are, in fact, adjusting gradually. He emphasizes the importance of "multilateralizing" the production of technical norms and standards and of recognizing the advantages of multilateralism over unilateralism. The chapter examines particularly the impact of eco-labelling in the European Union on Brazilian exports, specifically on the textile and footwear sectors.

Lael Bethlehem surveys the experience of South African exporters facing environmental pressures. Trade has an important role to play in South African development and, as in most developing countries, domestic environmental regulation is relatively lax compared with that of developed countries. Bethlehem shows that exporters are concerned with international pressures for environmental upgrading, but at the same time companies seem to be able to adapt to new market requirements. From a representative sample of exporters, she concludes that while international pressures reported by exporters are growing, it is also true that firms seem to be adjusting in a fairly smooth fashion over a protracted period. Moreover, if South Africa continues to diversify its exports towards its neighbours in a post-apartheid era, the weight of Northern-based demands will begin to diminish as a decisive element in firms' export strategies. Adaptation to the new environmental requirements depends critically on having sufficient information and sufficient investment capital. However, without minimising the significance of the international agenda, Bethlehem also shows that the international environmental agenda is, in most cases, different from the domestic agenda. Adjustment to international pressures tends to raise environmental performance, although sometimes in issues or processes that may not be of priority in the local context.

The book then moves to general analytical questions that encompass all the issues raised. Diana Tussie and Patricia Vásquez turn our attention to the debate that exists in the area of process and production methods (PPMs). They point out that developing countries believe that the PPMs debate could legitimise the use of trade sanctions under the new dispute settlement mechanism of the WTO. After analysing different types of externalities – consumption and production externalities – they argue that there are no precedents for provisions concerning PPMs in regional agreements. Up to now, it is simply a case of mutual recognition operating in practice. However, when externalities have an impact beyond national borders, restrictions on or the banning of a particular PPM may be necessary. Furthermore, since all ecosystems are interdependent, it could

be argued that national boundaries are fictitious. In this new scenario, product standards could become new instruments of competition. But levels of influence in negotiations for the establishment of standards are highly unequal, with developing countries relegated to a marginal role. They conclude that in some instances the liberalization of trade increases incentives for environmental upgrading, but that while some export-oriented firms in developing countries are already adopting international environmental standards, smaller firms producing for domestic markets are lagging well behind. Nonetheless, the authors foresee a piecemeal move to include consideration of PPMs in trade practices.

Partha Sen states that the environmental problem should be viewed as a problem of market failure, often exacerbated by government failure. He argues that the classical principles of trade theory alone are not helpful for the purpose either of understanding trade in the presence of externalities or of developing policy responses to them. However, "strategic" models of trade are well suited to these tasks. He uses North–South models and models of strategic interaction to analyse the kind of problems that might arise when considering the environmental dimension in North–South trade, and shows that trade policy is not the appropriate weapon in most cases to address environmental issues. Government intervention is needed to address market failures, although this should not be seen as a justification for trade sanctions. Sen's chapter concludes that trade policy should be used only if there are no other more efficient instruments available. As an environmental problem implies market failure, the solution lies in designing efficient mechanisms that may involve taking a longer view.

Part III of the book also addresses the relationship between the protection of the environment and the international system. Regional agreements can be seen as stepping stones towards global cooperation. Helge Hveem's chapter argues that regional integration and cooperation schemes should establish clear perceptions of their respective comparative advantage in performing governance tasks within the global system, and focuses especially on the comparative political advantage that regional institutions offer in resolving problems of environmental governance. The region may be more efficacious than the nation-state in solving collective action problems. Regional groups, in contrast to the Montreal Protocol, do not seem to pose a free-rider problem, first, because the number of parties involved is smaller, and second, because the differences in preferences and standards are narrower than at the global level. Furthermore, the region commands a much greater sense of collectivity or feeling of identity among participants than does a global institution. In this vein, the chapter

explains three types of goals and/or motives from which regional cooperation can stem: the maximization of utility, the maximization of security, and the defence of identity.

Nonetheless, the world community has much to learn from the experience of environment treaties negotiated so far. Jonathan Krueger explores the question of how trade restrictive provisions were included in the Montreal Protocol, which established three bans on ozone-depleting substances (ODS), products containing ODS and products made with ODS. Since it is not possible to verify at the borders, all like products from a country known to use ODS would be banned. The consequence of this measure was that developing countries were split in two broad groups: inward-oriented countries such as China and India, with large domestic markets, and thus relatively unconcerned with market access for their products made with ODS, and outward-oriented countries, such as the ASEAN members, concerned with access to supplies of alternatives to ODS for their export oriented industries. The concern with access to markets induced export-oriented countries to accept trade provisions and affected the speed with which industries adjusted to product characteristics defined by buyers. Thus, the duality between export-oriented and import-oriented lines of production affects country positions with respect to trade provisions.

Claudia Schatan's chapter focuses on the Mexican case. Mexico belongs to a free trade agreement (NAFTA) which incorporates an environmental clause. One of the most important aspects of NAFTA is that the international environmental agreements recognized by the three parties take precedence over national rules. The NAFTA members agreed to subscribe to the Montreal Protocol of 1987, the Basel Convention of 1989, and the Convention on International Trade of Endangered Wild Species (CITES) of 1973. The NAFTA's environment side agreement included the creation of an institution to promote cooperation on environmental issues. Schatan argues that there are significant tensions between trade and environment within NAFTA, and a real debate about the relative merits of cooperation and sanctions as mechanisms for enforcement. Within NAFTA, the conflict between trade and environment has been solved through cooperation, contributing in terms of regime and institution-building. However, the trade and environment link remains uneasy, particularly on the sanctions issue. It is important to highlight that access to NAFTA requires signing five environmental treaties. This process implies that the Central and South American countries will have to adopt these environmental treaties if the Free Trade Area of the Americas (FTAA) is to be created by the year 2005, thus relieving the WTO of pressure to cope with the most contentious issues.

The following two chapters explore the potential of using South-South regional blocs to address environmental concerns by analysing the experience of two regional groupings: the Association of Southeast Asian Nations (ASEAN) and the Southern Cone Common Market (Mercosur) in South America. These case studies were selected because they appear to be the two most cohesive regional groupings in the developing world. The objective of these chapters is to examine the extent to which these collective units may provide potential scaffolding for the management of natural resources and future environmental negotiations. The two regional groupings have very different stories, and the common ground so far usually appears to be a shaky platform for further positive engagement on environmental upgrading. But such a description is only half the picture. Although there is a willingness in both groups to allow countries to set their own standards, there is no evidence of a "race to the bottom" in a competition to attract investment. While member states of Mercosur have a long record of interaction – both cooperative and conflictive – over the use and protection of common natural resources, ASEAN's history has been marked by a relative absence of interaction on the use of shared resources. ASEAN, however, gained the diplomatic high ground in 1992 when Austria passed legislation to require a mandatory label on tropical timber, an issue to which ASEAN countries reacted collectively with the veiled threat of a boycott on Austrian goods. It is difficult to foresee a replication of such a reaction. Nonetheless, it highlights the extent to which environmental cooperation in ASEAN is defensive; it is weighted vis-à-vis third countries. Fear of disguised protectionism is paramount, and so ASEAN acts as a single unit in the context of the WTO Committee on Trade and the Environment. Preparatory work for presenting initiatives in this fora is done collectively.

The concluding chapter brings together all the strands, and points out that openness has different implications in industry and agriculture. However, environmental upgrading left to the market forces will reflect a Northern-biased agenda. As developing countries trade more and more with one another, two different markets with different environmental rules may emerge. In order to avoid this development, consensus at the international level and adequate policy processes at the national level are required. Access to Northern markets as an incentive to upgrade neglects domestic environmental priorities. Therefore, the international and the domestic environmental agendas must be compatible. The duality created both within and among countries by environmental standards suggests the inadequacy of trade incentives in genuinely addressing the concerns of

sustainable development. The final chapter reinforces the need for environmental pressures on international trade to be resolved. It also underlines the inadequacy of current instruments in addressing this antagonism, specifically highlighting the absence of a trade–environment dispute resolution mechanism. This institutional void may suggest a need for a multilateral and transparent body dedicated to combating cases in which the trade-sustainability tension emerges.

Part I

Case-Studies

2 The Case of a Renewable Natural Resource: Timber Extraction and Trade

Raúl Sáez

The concern about the state of the world's forest resources and the rate at which they are being depleted, especially with regard to tropical forests, has made both the relationship between international trade in timber and deforestation and the suggestion of imposing trade restrictions to reduce the rate of deforestation the focal points in the debate over trade, trade rules and the environment. Forests, especially tropical ones, are seen as part of the global commons. Therefore, their depletion concerns the world community as a whole and not only the countries under whose jurisdiction they are located. Since trade in timber and in wood products is highly visible (as is the felling of trees itself), governments and consumers in some developed countries are looking for ways to restrict it in order to reduce tropical deforestation. This is understandable, given that other sources of deforestation, such as poverty and demand for fuelwood, are less visible, or else, as in the case of the expansion of agriculture, simply not recognized.

The purpose of the chapter is to examine the issues of trade, multilateral trade rules, environmental protection, and negotiations on trade and the environment from the perspective of a specific renewable natural resource that is traded.

TIMBER TRADE AND FOREST EXPLOITATION

UNCTAD data for 1992 suggest that, with the exception of tropical wood-based panels, exports represent only a quarter of international production in physical terms. The share of world exports and production for industrial roundwood was 8%, 10% for saw and veneer logs, 22% for sawnwood and sleepers, 25% for wood-based panels, 19% for wood pulp and 26% for paper and paperboard. For tropical exports and production

the values were: 10% for industrial roundwood, 14% for saw and veneer logs, 15% for sawnwood and sleepers, 63% for wood-based panels, 23% for wood pulp and 21% for paper and paperboard. However, the data also show that the importance of trade has increased in the last thirty years. Between 1961 and 1993, world imports as a share of world production have increased from 4% to 7% for industrial roundwood, from 12% to 23% for sawnwood and sleepers, from 12% to 26% for wood-based panels, from 16% to 19% for wood pulp, and from 17% to 25% for paper and paperboards.

In all types of wood products, export earnings are by far the highest for developed countries: in 1993, 77% of the world total was earned by developed countries, principally by European and North American countries (UNCTAD, 1996). The largest share in world exports among developing countries is held by South and South-East Asia with Latin America in a distant second place, except in the case of wood pulp, in which the latter region accounted for 85% of developing country exports (UNCTAD, 1996). However, it appears that the importance of developing countries in world exports is growing.

The increase over the last decade in the rate of tropical deforestation has fuelled the discussion of both the role of timber trade in deforestation and the role of trade restrictions in reducing the environmental damage that such trade could be causing. However, it is difficult to determine the contribution of trade to the exploitation of forests and to deforestation as distinguished from other sources, such as domestic consumption of wood for industrial purposes and heating, or the substitution of forests for crops. International trade in timber may have a direct and indirect impact on deforestation (Barbier, 1994). The former arises through the cutting of trees and the damage caused to the surrounding area of the forest under exploitation. The statistical evidence available for tropical forests suggests that this is not an important channel through which trade affects forests. More significant is the indirect damage that timber production causes by facilitating the conversion of natural forests to other uses, mainly agriculture and ranching but also plantation forests. The construction of roads to transport timber, together with the open-access regime to which many forests are subject in developing countries, results in the transformation of previously forested land. Timber production has a much more significant effect on biomass reduction than on tropical deforestation (Barbier et al., 1995).

Trade provides contradictory incentives for the sustainable management of natural forests. On the one hand, trade increases the returns from sustainably managing natural forests and from afforestation and reafforestation, and reduces the incentive for replacing them for agricultural use. On the other hand, export growth is increasingly putting pressure on native forests. One source of this pressure is the incentive to convert natural forests into planted forests with exotic species that have the advantage of faster growth rates, lower harvesting costs and thus higher private returns. Even though the forest is restored, there will be an environmental cost, because plantation forests do not supply all the environmental services of natural forests. The replacement of the natural forest may lead to a loss of genetic bio-diversity and of flora and fauna, destabilise water cycles and provoke soil erosion and a higher vulnerability to pests from monoculture (Hartje et al., 1994). Unfortunately, there are no precise figures on the area of land substituted.

The case of Chile shows that trade in forest products can be based on plantation forests. Exports of forestry products rose from US$127 million in 1974 to US$2.4 billion in 1995. Most of the timber is obtained from plantation forests, except for wood chips, which are extracted from native or natural forests. Although plantations of exotic species represent less than 20% of the forest area classified as productive, they constitute 90% of the forestry products that are marketed (O'Ryan and Larraguibel, 1994). In 1991, 74% of the physical volume of timber cut for industrial purposes came from plantation forests (Rossi, 1995). These plantations are privately owned: since 1975, most of the planting has been carried out by the private sector and the government has privatised the productive plantations it owned.

A second source of pressure originates in exports of wood chips, which rose from US$3.5 million in 1986 to US$233 million in 1995. Slightly less than 40% of wood chips are extracted from native wood, and the average annual growth rate in the last four years has been 12%, although it is expected that this pressure will be reduced in the future as exotic plantations become available for production. However, about 10 million cubic metres of timber, equivalent to around 1% of the estimated stock, were extracted from native forests in 1991 (INFOR, 1992). Of that volume, about 40% was cut for industrial purposes and 60% for fuelwood. Thus, although the pressure from exports on natural forests has risen, most of the wood extracted is used for heating and cooking by small rural landholders, rather than for trade.

FOREST OVER-EXPLOITATION AND APPROPRIATE POLICY INSTRUMENTS

Clearly, then, trade in timber products is not the major contributor to the degradation of forests or their unsustainable exploitation. Nevertheless, if producers are facing the wrong incentives and environmental costs are not taken into consideration, an expansion of timber exports will lead to more environmental damage than otherwise, in the same way as will the expansion of any other activity that uses forest resources as an input or competes with forests. The excessive degradation and exploitation of forests originates in inappropriate incentives and signals, and poor regulatory frameworks. In turn, the former are the result of both market failures and government policy failures. Correcting both types of failure and improving on the regulatory schemes may lead to more sustainable exploitation of forests. Policy on forest resources should attempt to address directly the sources of the unsustainable exploitation of forests.

In addition to the provision of timber, forests perform a variety of environmental services such as watershed protection, habitat for wildlife and erosion control. It can also be argued, particularly of tropical forests, that they provide transboundary or global environmental benefits such as bio-diversity and global climate regulation. Market failures arise because the private costs of extracting timber do not reflect the environmental costs – that is, the cost of losing the environmental benefits, that are associated with standing forests. As a consequence, the privately efficient rate of extraction or exploitation is higher than the socially efficient rate.

The problem is that, from the perspective of owners, there is a market for goods such as timber, the provision and sale of which in the marketplace generates income from output. However, the provision of other goods, such as erosion control, carbon fixation and global climate regulation, does not generate income or individual economic benefit, and necessarily implies a free-rider problem. Therefore, some form of government intervention becomes necessary. The output of all these goods and services cannot be simultaneously maximized from every forest. For example, even if a natural forest is left to grow again with native species, during the transition the supply of some of the environmental services will be reduced. The protection of bio-diversity will be attained only by setting aside forests as protected areas under national parks and reserves. Equally, the protection of indigenous populations that live in the forests may require the reservation of areas for their exclusive use. For watershed protection and controlling soil erosion, timber extraction and tree felling

will need to be prohibited or restricted in certain areas, such as near rivers and springs or in steep slopes. Other natural forests would be designated as production forests for the extraction of timber.

In some cases, policies relating to the management of government-owned forests have also resulted in excessive logging. The allocation of concession rights in South-East Asia for excessively short periods of time – certainly shorter than tree-growth cycles – combined with an absence of reafforestation incentives are contributing to the depletion of forests. The result is "high-grading": high-value timber is removed without concern for future returns from standing trees and a degraded forest is left behind (Repetto and Gillis, 1988; Barbier, 1994). Hyde et al. (1991) show that the harvest level would be reduced if such costs are internalised through longer-term contracts or contracts that condition future concessions on proper performance or the sale of forest land to producers.

Renewable resources under an open access regime are exploited at a higher rate than under private ownership (Pearce and Turner, 1990). There are a number of reasons why in practice forests are subject to such a regime in developing countries. One is the weakness of legal systems that do not guarantee property rights or secure tenure. A second one, as mentioned above, is the way in which logging rights are allocated in public forests, creating a *de facto* open access regime because concessionaires have no incentives for investing in conservation. Third, in frontier areas a condition for securing land tenure may be the clearing of forests. Finally, there is the issue of the administrative weakness of forestry departments or ministries (Barbier et al., 1995). The inability of such government institutions to properly set logging fees and then collect them, to apply the regulations and laws, to avoid corruption, to have the technical capability of designing forestry policies in general and forest management programmes in particular, and to properly supervise them, also contribute to the unsustainable exploitation of forests.

Reform of forestry policies should aim at removing the distortions that create a situation in which (1) harvest rates are higher than the privately efficient ones and (2) privately efficient harvest rates are higher than the socially optimal ones. Removal of the first type of distortion requires policy reforms in areas other than forestry – for example, tax, trade and agricultural policies. The foregoing discussion suggests some of the changes that need to be made. The use of instruments that reduce the cost of timber extraction should be abolished and the policies on government-owned forests improved, such as concession contracts and the technical capability of forestry policy entities. In relation to the former, policy

recommendations include securing concession licences for longer periods, so as to cover at least a second cut or a full rotation, making concession licences legally transferable, and making concessionaires legally responsible for any damage to the residual forest that results from either their own actions or those of their agents, contractors and managers. Performance deposits can be used as an instrument to stimulate sustainable forest management under concessions (D'Silva and Appanah, 1993). The creation of a predictable long-term policy environment would make an important contribution to the adoption of improved management techniques and certainly encourage investment in plantation forests (which mature in the long run). The issue of property rights should also be addressed. Privatization is an option, but not the only one. Secure community ownership can also eliminate excessive logging resulting from open access.

Even assuming that all distortions that arise as a consequence of government policy failures are addressed, and that the allocation of logging rights in public forests takes into consideration the environmental costs of timber extraction, privately-owned forests will still be harvested at a rate higher than the one that would prevail if all environmental costs and services are accounted for. The problem is that economic incentives when natural forests are under private ownership are such that it is more profitable to clear-fell the forest and replant with fast-growing exotic species that to combine an initial selective logging and subsequent improved management of the forest. The evidence from Chile indicates that if the goal of the forest owner is to maximize the net present value of land then the optimal choice is clearly the former (O'Ryan and Larraguibel, 1994). Of course, the owner does not consider any of the environmental services or externalities of the natural forest.

Imposing sustainable management practices in production forests would lead to higher harvesting costs, which would be reflected in log and wood prices. A simulation exercise for Indonesia suggests that although the effect on the price of logs would be large, the same would not be the case for the price of sawnwood and plywood, and that Indonesian exports of these products would not be significantly affected (Barbier et al., 1995). However, there is evidence for the natural temperate forests in Chile that the increases in costs can be compensated by higher prices and returns, because improved management techniques lead to improvements in yields and in the quality of the timber extracted (Donoso and Lara, 1995).

Stimulating plantation forests (with exotic species) would reduce the pressure on natural forests. However, the former require a much larger initial capital investment than the latter. This could require a plantation subsidy, as used in Chile, but there are several reasons why it is not always justified. First, it would increase the incentives for substituting the natural forest with exotic plantations, because, as mentioned above, after the initial harvest it is more profitable to replant with a fast-growing exotic species than to manage the natural forest. Second, if policy distortions that reduce the price of harvested logs are eliminated then plantation forests will be privately profitable on their own, and exports will develop if the country has a comparative advantage in forestry. No subsidy will be required, except as a second-best instrument if financial markets fail to provide funding for plantations.

However, given the higher costs associated with sustainable management and the economic incentives for converting natural forests into plantation forests, a management subsidy for natural forests may be needed as a policy instrument to change the relative private incentives in forest exploitation and management and to compensate private owners when restrictions and regulations are established. A subsidy may also be required to promote secondary-growth forests or reforestation with slower-growing native species. At the same time, a tax on the substitution of native forests with plantations of exotic species may be required to discourage it.

Export subsidies for timber extracted from forests under sustainable management have also been suggested in order to encourage trade in these products and to compensate for the higher costs that producers of timber from such forests have to incur. Nevertheless, there appears to be little economic justification for such subsidies, because the effect of adopting better management practices on timber product prices would not be significant and, in addition, the subsidies would require close monitoring in order to avoid their abuse and the consequent trade conflicts they could provoke (Barbier et al., 1995). There is no justification for subsidising timber exports from planted forests.

In sum, the optimal combination of instruments will include both incentives through subsidies and direct administrative restrictions on forestry such as setting aside some areas for conservation, prohibiting exploitation of certain areas and the approval of management plans by forests departments.

MULTILATERAL TRADE RULES AND APPROPRIATE POLICY INSTRUMENTS

One of the outcomes of the Uruguay Round of trade negotiations was a new agreement on multilateral rules and disciplines on subsidies and the application of countervailing measures. The Agreement on Subsidies and Countervailing Measures (SCM) classifies subsidies into prohibited, actionable and non-actionable categories. An important concept introduced is "specificity", since remedies and countervailing measures can only be used for specific subsidies. Agricultural subsidies do not fall under the disciplines of this Agreement but rather under the provisions of the Agreement on Agriculture. However, forestry products do not fall under the classification of agricultural products as defined in Annex 1 of the latter agreement, so support measures for sustainable forestry would be subject to the rules of the SCM agreement. Export subsidies are prohibited subsidies but, again, their use would not be justified for the purposes of promoting sustainable management, so they are not really at issue. The question is how subsidies to forest management and planting in the case of natural and secondary-growth forests with native species would be considered, particularly if it turns out that most of the timber obtained from those forests is exported.

Subsidies provided as assistance for the adaptation of existing facilities to new environmental requirements imposed by law and/or regulations are non-actionable when such requirements impose greater financial costs to enterprises and meet certain requirements, which are specified in paragraph 2(c) of Article 8 of the SCM Agreement. It is not clear that subsidies provided for the planting of forests or their sustainable management would fall under these provisions, because the language of the article clearly refers to manufacturing facilities. New forests are not "existing facilities", and subsidies to promote sustainable management would not be exceptional and non-recurrent as stipulated in Article 8.

The Agreement on Agriculture includes those payments related to environmental programmes in the list of exemptions from the commitments of domestic support reduction in Annex 2 (the so-called "Green Box"). The text specifies that eligibility to receive this government support depends on a clearly defined environmental or conservation programme and on the fulfilment of the conditions established in the programme, including those related to production methods and inputs. Based on this precedent for agriculture, a subsidy for the sustainable

management of natural forests could be considered as part of a conservation program, with a condition related to production method (sustainable extraction of timber). Therefore, the possibility of allowing for an exception to the rules of the SCM agreement – a sort of "Green Box" or a more comprehensive Article 8 – for a subsidy of this type could be considered. Such a proposal is not without problems: it implies yet another exception to subsidy disciplines, and the programs would require close monitoring to ensure proper notification and avoid abuse.

THE EFFECTS OF TRADE RESTRICTIONS

It has been suggested that restrictions on trade in timber should be imposed to reduce the environmental damage caused by forest exploitation. Several developing countries have used or are using restrictions on the exports of logs such as taxes, quotas or other limitations in order to encourage the domestic industrialization of wood. The effects that such policies are having on the preservation of forest resources are an indication of the possible results of restricting log exports for environmental reasons.

Export restrictions lower the domestic price of logs. This reduces the incentive for investing in the sustainable management of forests and in reafforestation and afforestation. As a result, the transition of an industry based on natural forests to one based on secondary-growth and planted forests is not stimulated (Barbier, 1994). On the other hand, the incentive for converting forest lands to other uses is raised.

Indonesia introduced a ban on log exports in 1985, replacing it in 1992 with very high export taxes, which still impede the export of logs. As a result, there has been an increase in domestic processing capacity, which has actually led to an increase in total demand for logs, rather than a reduction. Furthermore, the processing industry exhibits significant inefficiencies so that, for example, the production of one cubic metre of plywood in Indonesia requires a quantity of trees 15% higher than at other countries' plymills in Asia (Barbier et al., 1995). Estimates also show that the annual harvest would fall by 10% if Indonesian sawmills and plymills were operating at the world technological frontier (Primo Braga, 1992).

Chile followed a different strategy. Until the policy reforms of the 1970s, a ban on the export of wood in rough and roundlogs in general that existed for many years was removed. Under that ban, producers were forced to sell in the domestic market, which was dominated by two or

three manufacturers of wood pulp and paper. Thus, the prohibition gave the latter a monopsony power (Rossi, 1995). This not only probably lowered the price of logs, but also provided no incentives for improving the quality of timber through better management, since the wood obtained was used in pulp mills.

Therefore, restrictions on the export of logs would not necessarily contribute to the conservation or sustainable exploitation of forests. Import bans and other restrictions on timber and timber products by importing countries would have similar effects. As Barbier et al. (1994) point out, even though these measures reduce the demand for timber, it does not follow necessarily that they will lead to a reduction in logging and in deforestation. If a total ban on imports of tropical timber is imposed by developed countries, there will be diversion to other non-restricted importing markets and to domestic consumption, and the resulting decrease in the value of standing forests will increase the incentives for converting them to agriculture. Similarly, a partial import ban – that is, one imposed only on timber obtained unsustainably – will also be ineffective. Such a ban would not act as an incentive to sustainable management, because it would also reduce the value of maintaining production forests. They also call attention to the problems of certification, monitoring and enforcement that a selective ban would involve.

It has also been argued that *existing* trade restrictions may be contributing to deforestation. Tariff escalation in developed countries has a negative environmental impact because it constrains developing countries to export low-valued products based on natural resources (ECLAC, 1995). A process of de-escalation would allow developing countries to export manufactured goods, with a lower content of natural resources. However, this argument assumes that natural-resource-producing countries also have a comparative advantage in processing (Barbier, 1994). In the case of wood products, this is far from clear. For example, NICs such as Korea and Taiwan are highly competitive in manufactured wood products although they are not particularly well endowed with forests.

As a result of their failure to address directly the sources of over-exploitation of forests, trade policy instruments, in addition to being ineffective, are inefficient because they create additional distortions. As discussed above, market failures related to the environmental and other externalities of forests are the first source of over-exploitation, and government policy failures the second. The fact that unilateral measures that restrict or ban trade in timber or in other forest products do not contribute to the sustainable management of forests has been taken up in

point 14 of the Statement of Principles on the Management, Conservation and Sustainable Development of Forests of the 1992 UN Conference on Environment and Development in Rio (UNCED, 1992). It is stated that such measures are "incompatible with international obligations or agreements, [that] restrict and/or ban international trade ... should be removed or avoided".

THE EFFECTS OF ECO-LABELLING

As an alternative to direct restrictions on trade, eco-labels for sustainably obtained timber or timber products have begun to be developed and supported by industrialized countries. Labelling schemes are considered to be more market-oriented than outright bans or trade restrictions. They are not necessarily mandatory, and provide information to consumers who choose freely between goods. The expectation is that the supply of the product using environment-friendly methods will rise and the supply using unfriendly methods will decline.

Eco-labelling can act as a barrier to trade in several ways (Jha and Zarrilli, 1994). First, domestic producers may influence the development of these schemes, for example by selecting only product categories that are of interest to them. Second, the criteria may be based on domestic environmental concerns, not allowing for other processes that are friendly to the environment in other countries where conditions are different. Third, the cost of inspecting plants or conducting tests and obtaining certification may be higher for foreign producers. One example of particular choice of product categories relevant to this discussion is when labelling for timber obtained from sustainably-managed forests is required only for tropical timber (which in general is produced in non-OECD countries) and not on temperate timber (which is produced in OECD countries).

In 1992, Austria passed legislation that required a mandatory label for tropical timber and all products derived from such timber and a voluntary quality mark for products derived from all types of timber, indicating that the timber was obtained from forests under sustainable exploitation. As a result of strong opposition from ASEAN countries, in particular Indonesia and Malaysia, Austria was forced to amend the law in 1993 (see Wiebe, Chapter 12 in this volume). The mandatory label for tropical timber was dropped, but the quality seal for all kinds of timber obtained from sustainable exploitation

was retained. Furthermore, since 1995 the Netherlands has begun to limit imports of tropical timber to those originating in sustainably-managed tropical forests (Droogsma, 1994). Clearly, this is more trade-restrictive than the Austrian labelling scheme, because consumers are not given a choice, and the restriction is directed only to tropical timber and not to temperate timber obtained from unsustainable exploitation.

Eco-labelling schemes introduced for pulp and paper can also have indirect implications for the sustainable exploitation of forests (Jha and Zarrilli, 1994). Denmark has proposed a number of criteria for granting an EC eco-label to certain paper products aimed at increasing the use of recycled materials (i.e., paper) and clean technology. Brazilian producers and exporters have raised a number of objections, three of which are relevant to our discussion (see Motta Veiga, Chapter 4 in this volume). Because of the emphasis on promoting the use of recycled papers, (1) the criteria as defined do not distinguish between wood obtained from planted forests and wood obtained from natural forests; (2) the criteria do not consider the environmental effects of planted forests; and (3) one of the criteria that define a sustainable forest is that it should contain a variety of species, which means that planted or secondary-growth forests may be penalised, reducing the incentives for afforestation and reafforestation in developing countries. Such a scheme does not contribute to the substitution of wood extracted from natural forests with wood obtained from secondary-growth or planted forests.

The question is whether or not such schemes would lead to more sustainable exploitation of forests. On that account, the Dutch proposal has several flaws (Barbier, 1994). By being discriminatory, because it does not include temperate timber, such a restriction may displace the pressure onto temperate forests. But more importantly, if it is not adopted by all importing countries it will be ineffective: timber exports will be diverted to industrialising countries which are tropical timber importers. 70% of tropical timber is imported by countries other than the Western developed countries where the pressure for labelling schemes is strong (Varangis et al., 1995). The exporting countries most affected will be those that export a large share of the timber extracted and that rely heavily on the markets of Western Europe and the US. These are principally African countries (Varangis et al., 1995). Other large exporters, such as Malaysia and Indonesia, export almost exclusively to other Asian countries. In fact, Asian countries account for 54% of global imports of tropical timber. Thus, labelling schemes may not be effective at all if they are established only in Europe and North America.

Financial benefits from complying with labelling requirements have to be sufficient to induce tropical timber producers to adopt forest management practices that are sustainable. Varangis et al. (1995) attempt to quantify those incentives. Financial incentives arise first from the higher price that would be obtained by labelled timber (the so-called "green premium") and second from the prevention of market losses in countries that adopt labelling schemes for tropical timber. Together these amount to 4% of the revenues earned from tropical timber exports by developing countries. On adding the potential recovery of market share already lost due to concerns about tropical deforestation, that figure rises to 5.4%. They conclude that timber certification would not provide significant financial benefits to developing countries, and if the costs of obtaining certification are included then the incentives are further reduced.

As in the case of trade restrictions, a major problem with eco-labelling schemes is that they may not increase the incentives for sustainable management because they do not address directly the sources of unsustainable exploitation. The certification schemes themselves should be designed to promote trade in sustainably obtained timber, rather than as a disguised instrument to restrict trade. Certification could be given to countries that have adopted policies leading to the sustainable exploitation of forests and timber products, in the context of an international commitment involving *both* producing and consuming countries. One existing example of that type of commitment is the International Tropical Timber Organization's (ITTO) Target 2000 program, according to which members are encouraged to achieve the sustainable management of tropical forests and engage in trade in tropical timber from sustainably managed sources by the year 2000.

TRADE RESTRICTIONS, ECO-LABELLING AND MULTILATERAL TRADE RULES

Although the evidence presented indicates that restrictions on exports or imports of timber would not necessarily lead to the more sustainable exploitation of forests, their compatibility with multilateral trade rules is still an important issue, particularly should consuming countries continue to argue in favour of their imposition. A ban on timber or timber products originating in forests not under sustainable management should be considered a quantitative restriction and thus a violation of Article XI of

the GATT. Similarly, it can be argued that trade taxes imposed only on timber or timber products originating in forests not managed sustainably would violate the principle of non-discrimination between "like products" originating in different contracting parties, which is a cornerstone of the multilateral trading system. Nor can members of the WTO discriminate between "like products" that are imported and those that are domestically-produced. In turn, the definition of "like products" has been ruled by GATT as applying to the characteristics of the goods or products, and not the characteristics of the exporting countries (Jackson, 1989). Furthermore, the basis for distinguishing products is the tariff classification, which is not based on process and production methods but on product characteristics. Therefore, applying a tax only on timber originating in forests not managed sustainably would imply that such timber or products made of such timber are not like products of timber and timber goods obtained from forests sustainably managed.

Some consuming countries have argued that trade-restrictive measures (such as a ban on imports) imposed for environmental purposes are permitted by paragraphs (b) and (g) of Article XX of the GATT. This allows for general exceptions to the disciplines of the GATT, including non-discrimination, as long as the measures adopted do not constitute an arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade. But the geographic coverage allowed in those measures has been a source of controversy (Adams, 1994). The recent ruling on the tuna–dolphin dispute between Mexico and the US suggests that such exceptions apply only to environmental damage in the importing country and not in the producing country. But what if there are transboundary effects? The existence of such effects could be argued for tropical forests on the basis of their contribution to global climate regulation. The difficulty is the unilateral adoption of the restrictions themselves and of the standards on which they are based. A more fruitful approach would be the one suggested in paragraph (h) of Article XX, which allows the adoption of measures required to fulfil obligations emanating from an international agreement on a primary product. That would require previous agreement on the standards and criteria for the application of the measures.

Therefore, with respect to the conformity of eco-labels with multilateral trade rules, two issues appear to be most important: (1) the possibility of explicit discrimination; and (2) the applicability of the Agreement on Technical Barriers to Trade (TBT) (OECD, 1994c). Here again the

disciplines established in Articles I and III of the GATT are relevant, particularly paragraph 4 of Article III, which extends the principle of national treatment to laws and regulations that affect the sale, the offer for sale, the purchase, the transportation, the distribution and use of the products in the domestic market. Labels indicating the origin of timber or timber products would fall into such categories. A mandatory label indicating that imported timber or product made of timber must originate in a forest sustainably-managed could be a violation of the non-discrimination principle, because it defines timber or timber products from a sustainably-managed forest as not being the same product as timber or timber products from forests unsustainably-managed.

A voluntary scheme indicating that the timber used in a product was obtained from a forest under sustainable management and with no restriction on imports of timber obtained otherwise would not be a violation of GATT rules. In that case, the discussion moves to the criteria that ought to be used for obtaining the label and the access to the certification procedures. These could come under the rules established in the TBT agreement for standards. (See the WTO's press release on trade and the environment of 29 April 1996 (Press/TE008) and the paper presented by Canada in the Committee's sessions of February 1996.) One of the purposes of the TBT agreement is to ensure that technical regulations and standards (including labelling) and the corresponding certification procedures do not create unnecessary obstacles to trade. Eco-labelling schemes should conform with the disciplines established in that agreement, particularly those that relate to transparency and avoidance of unnecessary obstacles to trade. However, the TBT agreement applies to measures designed to address environmental or other externalities that relate to consumption in the importing countries and not environmental externalities involved in production in the exporting countries, although the new text of the agreement does define technical regulations and standards as including labels applicable to processes or methods of production. To admit that eco-labels for sustainably-obtained timber are included in the TBT agreement would be an implicit admission that unincorporated PPMs are also included. This is a precedent for other exported products that may be unacceptable for developing countries.

This leads directly into the issue of harmonization of standards, which is a major source of controversy between developing and developed countries. The case of forests illustrates how difficult it may be to agree upon such production standards. The ITTO has attempted to prepare

guidelines on the sustainable management of forests, containing 41 principles and 36 recommended actions for, among other things, forest policy, management and financial aspects. However, they may not yet constitute a consensus on what is considered sustainable management of tropical forests and how to attain it. The problem is that given the variety of forests and of ecosystems they support, it will not be possible to go beyond broad guidelines at an international level.

The danger is that, in such a scenario, each country will design and adopt its own criteria on what constitutes sustainable management, and decide which forest policies contribute to sustainable extraction of timber and how to certify that the timber has been extracted from a forest under sustainable management or in a country with forest policies that stimulate sustainable exploitation. By not having, and thus not being able to adopt, internationally-recognized standards, even voluntary labelling schemes will imply significant costs for producing countries and *de facto* restrictions on their timber and wood product exports. Trade friction will be unavoidable if eco-labels are not developed and adopted in consultation and agreement with producing countries.

If labelling schemes for sustainably-obtained timber were subject to the disciplines of the TBT agreement, in particular the transparency requirements and their design on the basis of internationally-agreed criteria and standards, the risk of trade disputes would be greatly reduced. Exporting countries should be involved in the design of such schemes and the setting of the standards on which they are based, and developed countries should attempt to provide technical and financial assistance so that exporting countries can meet those standards. Given that there is no agreement to extend the disciplines of the TBT to unincorporated PPMs, an alternative option is the negotiation of a multilateral environmental agreement on forests that includes disciplines on transparency, non-discrimination and avoidance of trade barriers, like those of the TBT agreement, for eco-labelling schemes related to forest and timber products. Countries not part of the agreement could still export timber and wood products but would not be allowed to receive certification for either their products or their forests. Harmonization might not be feasible beyond the setting of broad principles and guidelines, so the agreement would concentrate on the procedures, criteria, guidelines and rules for certification and eco-labels. What constitutes sustainable exploitation will have to be worked out on a case-by-case basis, from forest to forest, from country to country.

GLOBAL COMMONS ISSUES

The protection of natural forests will not only provide benefits to the countries where they are located. It is recognized that some of the externalities provided by forests have a global character – for example, global climate regulation, carbon dioxide absorption and a store of biodiversity and genetic resources that potentially may be used in areas such as pharmaceuticals and medicine. Such benefits are usually associated with tropical forests, but temperate forests also generate some of these global externalities. We agree with Barbier et al. (1995: 125) that the international community "should therefore contribute towards compensating producing nations for the loss of potential income that they would incur in reducing tropical deforestation, timber sales and conversion of forest land to other uses". The preservation of endangered or unique species and of biodiversity requires the creation or expansion of parks and reserves. In addition to the opportunity cost incurred in terms of the income foregone, their management is costly and therefore it should be also supported through international financial transfers. Such transfers may also be required to ensure enforcement and monitoring of sustainable management.

Chapter 11 of Agenda 21, adopted at the UN Conference on Environment and Development of 1992, contains a number of programs needed for combating deforestation. Four major program areas were included: (1) for sustaining the multiple roles and functions of all types of forests, forest lands and woodlands; (2) for enhancing the protection, sustainable management and conservation of all forests and the greening of degraded areas, through forest rehabilitation, afforestation, reforestation and other rehabilitative means; (3) for promoting the efficient utilization and assessment to recover the full value of the goods and services provided by forests, forest lands and woodlands; and (4) for establishing and/or strengthening capacities for the planning, assessment and systematic observation of forests and related programs, projects and activities, including commercial trade and processes (United Nations, 1993). For each one of them, the conference secretariat estimated the total annual cost of implementing the activities of the program, including the financing required from the international community on grant or concessional terms. The total for the latter amounts to US$ 5.7 billion. Most of the financial transfers would be related to programs whose objectives refer to the sustainable management of forests, the recovery of the full value of goods (both wood and non-wood) and services that can be obtained from forests, the preservation of forests, and the recovery of degraded forests lands – that is, program areas (1), (2) and (3) above.

CONCLUSIONS

Trade in timber products is not the only nor the major contributor to deforestation. Therefore the use of trade restrictions will be an ineffective and inefficient tool to promote the sustainable management of forests. Furthermore, they may even be counterproductive. Each producing country will have to reform the government policies that stimulate deforestation and unsustainable exploitation, and address with the appropriate policy instruments the market failures that also contribute to deforestation. There is no substitute for policy reform and the use of instruments that directly correct the difference between the private cost and the social cost of exploiting forests. Furthermore, these policy reforms would not be in conflict with multilateral trade rules and would contribute towards a more open and transparent trade regime. Only subsidies for promoting the sustainable management of natural forests and reforestation with slow-growing native species could be justified. However, such subsidies, by being specific, could be subject to countervailing action, so an additional exception could be included in the WTO's subsidy disciplines, following the precedent of the "Green Box" for environmental subsidies in the Agreement on Agriculture.

A multilateral environmental agreement on forests would be useful. Such an agreement should include agreed general principles and criteria for defining sustainable exploitation of a forest, since it is difficult to imagine that standards for the management of forests could be harmonized to the extent that may be possible in other sectors. Such principles and criteria could also provide a basis for the examination of subsidy policies towards forests. Second, the agreement should cover all types of forests: tropical, temperate and boreal. Third, the agreement should contain the general principles on the basis of which eco-labelling schemes are to be developed. In addition to the technical aspects, the agreement could, for example, require that such schemes be developed collectively by producing and consuming countries in order to make them workable and effective and so that they follow the types of disciplines existing in the TBT agreement of the WTO/GATT. The latter would have the additional advantage that unincorporated PPMs would remain outside the TBT agreement. Carrots for joining such an agreement could be provided by not allowing certification of non-member countries and by channelling financial and technical support exclusively to members.

The only existing evidence on the incentives provided by eco-labelling schemes shows that the financial benefits would not be large enough. This implies that financial transfers to the producing countries will be required. Such transfers can be justified on the fact that forests, particularly tropical forests, provide environmental services to the world as a whole, not just to the countries where they are located. Reducing the rate of deforestation and depletion of forests would also benefit the consuming countries.

3 Agriculture and the Environment in Developing Countries: The Challenge of Trade Liberalization

Graciela Gutman

Agricultural trade liberalization is particularly relevant to developing countries. First, in contrast to industry or services, agricultural protectionism is a sin of developed countries. Second, although all parties will benefit from increased efficiency in resource allocation, developing countries could be first in line to reap the producer benefits of increased production and exports, while urban consumers in Europe and other industrial countries would receive the bulk of consumer gains through lower local prices. Two parallel concerns have been raised against this optimistic view, particularly regarding developing countries – namely, the social and environmental costs of increased income inequality, unemployment, reduced welfare, natural resource depletion, bio-diversity losses, pollution, and environmental unsustainability.

However, relations between trade and the environment are complex. Expected growth from increased trade may produce different effects, with non-negligible consequences for the environment, including scale effects, changes in the specialization pattern, and access to more environmentally friendly technologies (Grossman and Krueger, 1991). These effects may be contradictory in developed and developing countries – and also within each of these sets – and, in some cases, impacts can be very significant. The direction and magnitude of changes will depend on several circumstances, including previous economic and social structures, different national ecosystems and natural resources endowments, the degree of reliance of different types of production regarding world trade (output as well as input), macroeconomic, sectoral and environmental economic policies, and the state and development of production techniques and technologies and their international diffusion.

Impacts might be intensified in developing countries, as the turnround in their economic policies (deregulation of domestic markets, strengthening of the private sector, unilateral trade opening, structural adjustment programs) tends to encourage an outward-oriented path of growth still mainly dependent on exports of natural resource-intensive goods. Improved market opportunities in the short term might induce the expansion of "slash and burn" practices, regardless of natural resource preservation and environmental damage.

Assessing the costs and benefits of trade liberalization and economic growth is far from straightforward. For supporters of world reform, social or environmental costs are either negligible, temporary, or only to be solved through more economic adjustment and trade liberalization. In this view, overall economic benefits outweigh any possible social or environmental cost. Critics are less homogeneous. A few of them would reject trade reform altogether, on the grounds that social and environmental costs would outweigh the potential benefits of economic growth. Most critics do not go so far, but would argue that current social and environmental costs are high, and reliance on the market mechanism is not the appropriate answer. Therefore they would call for specifically tailored national policies, to ameliorate the lot both of the environment and of the poor.

AGRICULTURE AND THE ENVIRONMENT: SOME BASIC FEATURES

By virtue of the production process, agriculture always transforms the natural resource base. Negative impacts may refer to: (1) changes in natural ecosystems (i.e., bio-diversity losses); (2) changes in natural endowments (i.e., pollution, soil deterioration); or (3) medium- and long-term vulnerability of agricultural production and/or other activities directly or indirectly affected (loss of sustainability). Whether or not these changes are to be considered environmental damage will depend on social, economic and scientific criteria: environmental damage may be defined scientifically (pollution rates over natural values), socially (people's choices and priorities) or economically (externalities). Even if these three approaches are associated, they are not interchangeable and relate to different policy prescriptions.

The main categories of possible environmental damage are twofold. First, on-site effects include effects on the health of farm workers of pesticides, fertilizers, heavy metals and feed supplements; erosion of soil resources;

and soil productivity losses from salinization, compaction and chemical pollution. Second, off-site effects include the following: contamination of coastal, surface and ground water by chemical fertilizers, pesticides and animal manure; downstream changes on water regimes and increased water-related hazards such as floods; conversion of forest, wetland and other natural features to agriculture; loss of wildlife and biological diversity; deterioration of eco-systems; contribution to global warming through emission of greenhouse gases (that is, the concentration of manure from intensively produced livestock); acid deposition from ammonia emissions from livestock and fertilizer; and effects on human health from, for example, consumption of contaminated food products or water.

The main environmental consequences of agricultural production are to be expected at the domestic level and affect local resources, principally in the form of soil deterioration and water pollution. Indirectly, however, agriculture may be responsible for damage to the global commons when expansion of production occurs on forest lands (see Sáez, Chapter 2 in this volume). Off-site effects may also be transboundary, such as in the consumption of contaminated imported goods, or regional, such as in water pollution in neighbouring countries. However, agriculture is not among the principal directly polluting factors relating to global warming (the greenhouse effect), although some agricultural regions of the world may be strongly affected in the future on account of potential changes in global climate conditions.

The impact of agricultural production on natural resources and the environment depends essentially on the way natural endowments are combined with production techniques. The association of some of these impacts with a particular group of countries is not unambiguous. Nevertheless, it is accepted that problems with resource quality (due to pollution) are usually greater in industrialized countries, and that resource losses (due to land degradation) seem to be the most important environmental issue in developing countries.

The heterogeneity of development levels in this latter group of countries, and the fact that they are in many cases located in more fragile ecological regions, are some of the reasons explaining those differences. Evidence from Latin American countries supports the above arguments. Latin America is one of the wealthiest regions in the world in natural resource endowments, accounting for 23% of the world's potential arable land, 12% of its cultivated land and 46% of its tropical forests. With only 8% of the world's population, more than 200 million hectares of land are moderately or severely degraded as a result of human activity, which amounts to almost a third of total agricultural land (Garret, 1995).

Degradation appears to be more acute in the mountainous ecosystems of the Andean Zone and in Central America and Mexico, where it affects an estimated 40 to 60% of all potential arable land, but it is also present in subtropical and temperate zones (Trigo, 1995).

The specific manifestations of this damage depend on agro-ecological, environmental, and socio-economic conditions prevailing in each country. For instance, the degradation caused by highly irrigated tropical cash crops such as cotton, bananas, coffee, sugarcane, fresh fruits, and vegetables, typical of several Latin American countries (Brazil, Paraguay, Venezuela, Ecuador, Peru, Central America, Mexico, Chile and the Caribbean), arises principally from intensive use of chemical inputs, soil and water pollution and deforestation (Trigo, 1995). In Argentina, a recent report from the Natural Resources Office shows that more than 60 million hectares of arable land are moderately to severely eroded. This problem is widespread as a consequence of overgrazing, non-conservative agricultural practices, deforestation and cattle expansion in more fragile lands, but is particularly critical in the arid and semi-arid regions, which amount to 75% of total Argentine agricultural production.

TRADE LIBERALIZATION AND THE ENVIRONMENT: THE CURRENT DEBATE

The relationship between trade and the environment is complex and in many cases contradictory, since economic growth associated with trade expansion will be accompanied by changes in the composition of agricultural production, production techniques, and patterns of international specialization. Trade will alter the demand for intermediate inputs (pesticides and fertilizers) and primary or natural inputs (soil and water). World agricultural markets historically have been highly distorted by support and protectionist policies in industrial countries. OECD estimates of total support to agricultural producers as measured by the net total Producer Subsidy Equivalent (PSE) were $163 billion in 1993, which represents 42% of the value of OECD agricultural production at the farm gate. For the European Union, this percentage was 48%, and for the US, 23%. Price support policies accounted for 76% of all forms of support in OECD countries in 1993, 83% for the European Union and 51% for the US (OECD, 1994a).

A move to multilateral liberalization and agricultural policy reforms in the EU and the US will lead to a decrease in domestic prices in industrial countries and a rise in international prices, principally for temperate products, which have been the most affected by protectionist measures. The actual magnitude of the increase in international prices will also be affected by domestic policy responses in developing countries. In the long term, rises could be mitigated if these countries transfer to their domestic market the changes in international prices, expanding their production and exports (Anderson, 1992b; Pearce and Warford, 1993; Trigo, 1995).

While lower prices in industrial countries will tend to reduce agricultural production, the opposite situation is the case in developing countries. An international relocation of production from high-priced to low-priced countries can be expected. However, the net change in the aggregate level of world production can be positive or negative, depending on the current patterns of distortions to incentives in different countries, and the net impact of reducing those distortions on international prices (Anderson 1992b). At the same time, world production naturally will also be affected by technical progress. It is generally accepted that, by inducing less intensive production techniques, trade liberalization will have positive impacts on the environment in previously protected countries. Empirical research has shown that agricultural inputs such as chemical fertilizers and pesticide applications, associated with more intensive techniques of production, are positively and highly correlated with producer price incentives (Anderson, 1992b).

However, there is no agreement regarding the impact on the environment in countries previously not protected, particularly developing ones. Additional pressures on the environment, induced by more intensive techniques as a consequence of the new export push, are to be expected. At the same time, some environmental gains may arise following trade liberalization, particularly access to more environmental friendly technologies and a reduction in poverty pressures on land as a result of increased trade revenues. A trade versus environmental debate has been opened, with opposite policy prescriptions. By and large, trade supporters approach trade–environment issues from a narrowly defined economic standpoint. On the other hand, environmentalists will tend to underline social and scientific concerns. We may classify the different theoretical approaches into three main categories: the orthodox thesis, the critical approach, and a cluster of more pragmatic responses within a context of free trade.

The Orthodox Thesis

Supporters of free trade argue that environmental deterioration stems from the production and consumption of goods, and not from international trade itself. The expansion of trade is a source of increased wealth and diffusion of technology, including more friendly environmental techniques, and both processes enhance countries' ability to protect and to upgrade their environment. Kym Anderson, for example, thus questions the argument that trade in agricultural products is environmentally unfriendly, and from this standpoint argues that trade restrictions are not the appropriate policy instruments to address environmental degradation.

Using a partial equilibrium model for testing global welfare effects of liberalizing agricultural trade, Anderson (1992a, 1992b) states that reducing agricultural price and trade distortions will involve a change in incentive structures that will increase incomes both in previously protected countries and in the rest of the world, generating large global economic gains and reducing global environmental damage. However, global welfare and environmental gains may not result in gains for all countries. It is likely that some countries – the poorer ones – will not be better off after trade liberalization. This is a question that cannot be answered a priori, and case studies are necessary to identify the likely environmental effects of trade liberalization. Environmentally negative impacts may result from the use of more intensive production techniques associated with the expansion of output, or the expansion of land areas at the expense of forests. However, these resources might otherwise have been employed in more polluting activities. Food importing countries, on the other hand, can lose from a trade liberalization that raises their border prices, although some of them may switch from importing to exporting or implement policies that keep their domestic price of food below international prices. Even if environmental degradation increases in poorer countries, welfare is likely to improve if the appropriate environmental policy instruments and the removal of distortions to farm prices are introduced as the international price rises. Anderson's conclusion is that trade liberalization in agricultural production need never be put off for environmental reasons.

The research carried out by the GATT concerning trade and the environment follows the above line. An expansion of trade following trade liberalization may produce negative environmental effects in certain countries – even to the point where they outweigh the conventional benefits from free markets – but only if the country does not implement the appropriate environmental policy that reflects its environmental values and priorities. As a consequence, unilateral trade restrictions are not the most efficient instrument dealing with an environmental problem (GATT, 1992).

The Critical Approach

In opposition to the thesis that free trade is beneficial to all countries involved, some authors propose a critical assessment, rejecting trade liberalization because of its social and environmental costs (see Daly, 1991). Ropke (1994), for example, argues that free trade benefits for developing countries have been dubious, stimulating growth with short- and long-run environmental problems. Most importantly, trade is the cause of the problem and not the solution: trade not only magnifies negative externalities, but also creates new ones, and doing so contributes to environmental degradation. This is the case for some developing countries, which have followed new specialization patterns based on the export of natural resource-intensive goods and have been caught in a kind of "specialization trap" (specialization based on products with low-demand elasticity and low-income elasticity). If this pattern is not broken then "free" trade becomes "forced" trade, and may produce irreversible environmental damage. Ropke makes a case for reducing trade under those circumstances.

This critical approach proposes some methodological aspects to be taken into account: greater emphasis upon the dynamics of trade, development and sustainability links; new theoretical approaches to take into account the pervasive character of externalities; special concern with the prevalent inequalities; and the importance of initial conditions. These "orthodox environmentalists" call for export restrictions in defence of the environment, arguing that if production and/or consumption of a good is pollutive then an expansion in global output of that good following trade liberalization would lead to greater environmental degradation.

More Pragmatic Approaches

Recognizing the importance of trade liberalization, a wide school of thought proposes a more pragmatic approach to trade and environmental links. In addition to the widespread criticisms made to the neo-classical paradigm – especially concerning the assumptions of perfect competition, the absence of externalities, the hypothesis of equally dynamic comparative advantages, and the utilization of partial equilibrium models that ignore other impacts and forms of inefficiency (see Ekins et al., 1994) – arguments are advanced to consider the possible impacts of trade liberalization on the environment, focusing on the particular situations of

developing countries, and on the consequences of the way international agricultural markets work (see ECLAC, 1993; FAO, 1994/1995; Pearce and Warford, 1993; Markandya, 1994b; Ekins et al., 1994; Trigo, 1995; UNCTAD,1993).

Opening to trade in the absence of environmental controls, it is argued, does not necessarily result in an overall increase in welfare, and may lead to over-exploitation of environmental goods. It is possible for a single country to secure sustainable development – in the sense of preserving its natural resources – at the cost of procuring unsustainable development in another. The import and export of sustainability are partly an issue of international inequality. How far this "trade in sustainability" is a matter of concern will depend on several circumstances, including the balance between trade and the resource endowments of the each country, the extent to which trade revenues are applied to less polluting activities, and the extent to which international prices reflect the social costs of resource degradation (Pearce and Warford, 1993, Markandya, 1994a).

The main conclusion is that, if there are no market imperfections or distortions, and in the presence of full social cost pricing in each country then trade restrictions are not the adequate response to environmental degradation, and free trade may be considered a necessary condition for economic efficiency at national level. Up to here, authors in this current of thought are not in opposition to the orthodox thesis. Yet, when the above conditions are not fulfilled, these authors accept trade restrictions in developing countries, for transitional periods. They may be used as interim measures to protect the environment and natural resources, if first-best policy instruments to reduce environmental damages (domestic policies that directly tackle the environmental problem) are not available or politically feasible. Moreover, even if policy instruments other than trade restrictions are employed to internalize environmental costs, it is also recognized that environmental regulations do not correspond to a full internalization of environmental costs, and additional measures may become necessary. Thus, a case-by-case approach is proposed for assessing environmental impacts of trade liberalization, in terms of both individual countries and specific agricultural products. The need for regional and global institutional frameworks to provide adequate and democratic environmental signals is also stressed (Hveem, Chapter 8 in this volume).

The debate is far from being closed, and opposite arguments and evidence continue to appear in the fore of discussion. Nonetheless, there is a widespread acceptance that trade restrictions – even if they may be necessary in developing countries for transitional periods – are not the first-best instruments to address environmental challenges.

SOME RECENT EXPERIENCES IN DEVELOPING COUNTRIES

The adoption of export-oriented growth strategies tended to increase the importance of agriculture in the export structures of many developing countries. In Latin America as a whole, agriculture and agriculture-based industries accounted for more than 40% of total exports in 1995, excluding oil and minerals (ECLAC, 1996). Figures vary between individual Latin American countries, which have followed different specialization paths since the 1980s. Some of them, like Mexico, Brazil or Costa Rica, have changed their traditional international specialization patterns in the last decade, diversifying their export structures with an increase in the relative share of industrial exports (Gutman and Miotti, 1996). Nevertheless, even in these countries agricultural exports continue to play a strategic role, with the restructuring of traditional activities and the development of new, modern, dynamic, export-oriented ones. This tendency is likely to continue in the years ahead.

However, empirical evidence associating environmental damages with export-oriented agricultural production in the strict sense is scarce. In addition, it is difficult to isolate the contribution that trade makes to the exploitation of natural resources, because other circumstances (such as pressures from poverty) may contribute to environmental degradation. Environmental impacts differ between countries and specific agricultural crops: trade may have contradictory effects, and damage tends to be cumulative in the long run.

Although most of the case studies presented in recent literature stress the negative impact of trade liberalization in developing countries, overall effects are mixed. In some cases, trade reforms and structural adjustment programs have stimulated the expansion and diversification of tradable crops and shifts to non-traditional commodities, with positive environmental impacts. This is the case, for instance, with Cameroon, where trade policy reforms had provided new incentives for farmers to increase production of cocoa and coffee, crops that are less erosive than previous subsistence crops. The case studies reviewed by Reed (1996) show that cash crop production is able to respond successfully to new price incentives from international markets by diversifying crops, intensifying production and introducing technological improvements. In some cases, these changes have been accompanied by environmental improvements. Small farmers, on the contrary, concerned primarily with their own food security, will intensify their production of food crops in response to deteriorating economic conditions, a production based in

many cases on unsustainable practices, which will lead to greater environmental damage. The overall environmental impact is closely associated with the relative size and social and economic conditions of small, subsistence producers. Lankoski's review of the linkages between agricultural policies, trade liberalization and the environment presents additional evidence that suggests that in some cases, environmental effects from trade liberalization might be neutral (Lankoski, 1997): studies on the impact of NAFTA on environmental quality in Mexican agriculture indicate that the expected increase in chemicals used in fruit and vegetable production may be offset by a decline in grain production. In Chile, the probable environmental effects of a complete agricultural liberalization in OECD counties are expected to be very small, in the form of neutral effects on soil erosion and an increase in fertilizer use for almost all crops.

Below, some illustrative examples of negative environmental impacts associated with export expansion are summarized. The first two are related in one way or another to the distorted trade patterns derived from the early Common Agricultural Policy (CAP) of the European Economic Community (EEC).

The "Cassava Connection"

The "cassava connection" is an interesting case of trade and environmental linkages that involves Thailand and Indonesia. It illustrates how a distorted trading structure combined with short-term policy objectives can lead to an environmentally questionable outcome (Barbier, 1991). Cassava is a root crop widely grown for human consumption in the tropics and a rich source of feed for livestock. It is an "easy" crop: it requires little labour and attention, is relatively disease-free, can be grown on relatively poor soils, and is drought-tolerant (Siamwalla, 1991; Pearce and Warford, 1993). In the past, little cassava was traded internationally. Export expansion began in the 1960s associated with the CAP, whereby as a result of the concessions granted during the Dillon and Kennedy rounds of the GATT, protein crops and root crops were granted very low tariffs while cereal imports remained highly protected. Thai exports dominated the markets, but always competed with Indonesia for a share of total import quotas for cassava, mainly used as feed for intensive pig farming in the Netherlands (Barbier, 1991; Pearce and Warford, 1993).

In order to increase its share, Indonesia stimulated production and export of cassava. As a result of rises in domestic prices, monocropping of cassava expanded on the fragile upland soils of Java and on converted

forest lands in the Outer Islands, leading to upper watershed degradation and deforestation (Barbier, 1991). In Thailand, small farmers rapidly expanded production of cassava on previously public forest lands, along with exports. Between 1968 and 1980, cassava production doubled every four years. The end of the cassava boom came in the 1980s: in 1982 Thailand agreed to limit its exports of cassava to the EC at about 5 million tonnes per annum, when previous exports stood at about 8 million tonnes.

The most visible environmental impact of the 1968–80 boom was a steep decline in forest areas: in the northeast of Thailand forest areas were depleted by half from close to 30% of the area in a period of less than fifteen years (Siamwalla, 1991). Some authors consider the cassava export expansion to be a significant cause of deforestation, soil erosion and reduction in soil nutrients. But the reality is more complex: cassava does not cause more depletion of the soil than other crops, although it does remove nutrients from the soil when there is no artificial fertilization, as was the case in Thailand. Other authors argue that deforestation would have occurred anyway, with or without cassava production, because of the pressures on land caused by poverty-induced unsustainable production (Pearce and Warford, 1993). In short, during the export boom years, land degradation and the reduction of forest areas took place in both countries. How increased trade contributed to this process needs to be re-examined. Nevertheless, the "cassava connection" case illustrates the actual and potential damage to the environment stemming from the failure to coordinate short-term trade objectives with environmental policies.

"Agriculturalization" of the Argentine Pampas

The Argentine pampas is one of the world's most productive areas for temperate commodity products, where a high proportion of production is oriented to world markets. The "agriculturalization" of this region – a term used to describe the cereal and oilseed expansion at the expense of livestock production – that began in the 1970s provides an interesting example of the harmful effects on sustainability of international market-driven specialization. As in the case of cassava, grain expansion is linked directly to the demand for livestock feed from intensive forms of production in the EC.

Here poverty does not provide a counterfactual element, because the land tenure system is highly concentrated. Argentina became one of the three main exporters (together with Brazil and the US) of soybeans and industrial by-products to EC markets during the 1980s (Gutman and Feldman, 1990).

Grain production grew significantly in those years, especially soybeans for export, leading to a profound transformation of the traditional crop–cattle rotation production system. The rotation scheme was replaced by a permanent crop production accompanied by a process of technological innovation with greater use of fertilizers and agrochemical inputs, which increased the productivity and profitability of these crops (Trigo et al., 1991; Obschatko, 1988, 1991). Short-term and rental contracts widespread in this area did not encourage land reservation or the implementation of conservation techniques (Gallo Mendoza, 1996; Morello and Marchetti, 1995; Trigo et al., 1991).

The new "permanent agriculture" has led to a drastic fall in the levels of organic material, nitrogen and assimilable phosphorus present in the soil. In some areas of the pampas, losses of organic material are as high as 47% compared with virgin or unaltered soils. Losses of nitrogen and phosphorus are 48% and 76% percent higher respectively (Trigo et al., 1991, Trigo and Kaimowitz, 1994). In one of the most productive areas of the pampas, the so-called "Corn Centre", recent research shows that soil erosion associated with new continual crop practices were 65% higher than those observed in rotation systems (Morello and Marchetti, 1995; Solbrig, 1997). The effects of intensive use of herbicides and plaguicides in soybean production on the quality of water have not yet been evaluated, but significant changes in the environmental conditions are predictable, owing to the growing dependence on these inputs (Morello and Marchetti, 1995).

Agricultural intensification took on an additional impulse in the 1990s. The stabilization plan in Argentina, and the elimination of tariffs on imported inputs, led to a dramatic rise in the consumption of fertilizers and agro-chemicals, mostly imported. Total agro-chemical sales increased by 87% between 1991 and 1995 (the most striking rises were to be found in herbicides associated with soybean expansion), and fertilizer consumption quadrupled between 1990 and 1995 according to official estimates. At the same time, trade liberalization and economic deregulation have attracted new short-term financial investments in agriculture, leading to the consolidation of large tracts of farmland as required by economies of scale, and a greater use of intensive technologies, with greater risks of resource degradation, as the time horizons of such investments make resource conservation unattractive (Trigo, 1995).

Intensification techniques and new forms of short-term investment pose severe threats to natural resource conservation and the environment in the pampas in the near future. Even if the current intensity of fertilizer and

agro-chemical use in Argentina is dramatically below those prevailing in industrial countries, the above evidence shows that intensification is taking place at high rates. The pursuit of short-term profitability may be in direct conflict with the diversification required to ensure sustainability (Trigo and Kaimowitz, 1994). In instances such as this (which is by no means an isolated example), in which export expansion takes place without supporting policies to ensure sustainable practices, the working of the market is detrimental to sustainability. Although more research is warranted, the lessons of this case give ample food for thought to the need for designing support policies to trade expansion.

Development of New High-Value Agricultural Products for Export: The Case of Shrimps in Ecuador and Honduras

Shrimp mariculture in Ecuador, the principal producer in Latin America, was developed in the 1970s, and production expanded rapidly from 45,000 tonnes in 1975 to 65,000 tonnes in 1988, supported by national exchange rate, tax and credit policies (Torres Zorrilla, 1994). Production was destined mainly for external markets, principally Japan, the US and some European countries. Shrimp became the second most important export product, after petroleum (Gutman and Miotti, 1996). Expansion has resulted in the degradation of numerous coastal mangroves. As a result of the diseases stemming from a degraded environment, the natural reserves from which shrimp larvae are obtained are being depleted. Natural reproduction of shrimps as well as larvae for pool farming have been reduced: in 1985, around 40% of the pools were not used for this reason (ECLAC, 1993; Torres Zorrilla, 1994). To face this problem, producers have recently moved from extensive to semi-extensive cultivation. However, the more intensive cultivation methods threaten to generate further environmental problems, such as salinity of coastal soil, reduction in the subterranean water layer and greater vulnerability to epidemics (ECLAC, 1993).

The environmental implications of shrimp farming are complex, and involve diverse elements of the environment. The wetlands, including mangrove ecosystems, play a decisive role in sustainable development strategies. Mangroves perform certain ecological functions (control of erosion), generate products (fish and wildlife) and have important attributes as providers of abundant bio-diversity. The consequences of the loss of these functions in the Ecuadorian coastal system are difficult to

quantify. Nonetheless, shrimp expansion has resulted in the accelerated degradation of the mangrove ecosystem, while economic benefits deriving from exports seem volatile and short-term. The migration of workers induced by the shrimp bonanza has caused conflicts over land use and tenure systems, and the alteration of traditional patterns of fishing and agriculture (Torres Zorrilla, 1994).

A similar process took place in Honduras, here external sales of shrimp increased sharply in the 1990s. As in Ecuador, the transformation of mangrove ecosystems into pools for shrimp farming was encouraged by policy incentives to achieve diversification and growth of exports. Shrimp farming in Honduras is presently the most threatening factor in the destruction of the coastal resources (ECLAC, 1993).

INTERNALIZING EXTERNALITIES: POLICY INSTRUMENTS AND MULTILATERAL TRADE RULES

The question thus is how to prevent additional environmental damage in developing countries as a result of trade liberalization. There is a widespread agreement among economists that the best way to deal with environmental problems in these countries is, in the first place, to modify or replace government policies that have had indirect negative impacts on the conservation of natural resources and the environment (policy failures), and, in the second place, to implement appropriate and targeted environmental policies.

Specific policy instruments that directly target the source of environmental damage are, on the one hand, those associated with the "polluter pays principle" (PPP), and, on the other, environmental subsidy schemes. These policy instruments have opposite effects on final producer prices and on trade and international competitiveness. In the first case, final producer prices will reflect at least part of the costs of environmental deterioration; in the second, polluters will be subsidized for pollution control measures, so internalization will not be reflected in final prices.

The Polluter Pays Principle

The current economic approach to environmental damage stresses the importance of internalizing externalities. Although this approach enjoys widespread acceptance among economists, it is important to bear in mind

three points. First, environmental deterioration and externalities are not interchangeable concepts. As discussed above, the former is a physical measure based on scientific criteria; the latter is an economic concept. Second, from an economic approach, internalizing externalities does not necessarily eliminate environmental damage. The aim is only to reduce these to the "optimum pollution level", and only to the extent that increased prices would reduce the pressure upon natural resources (through reduced demand and hence reduced production). Third, even were part of the increase in prices resulting from internalizing externalities to be set aside to repair environmental damage, repair would depend on whether or not the damage was in fact reparable. This is not always the case with bio-diversity losses or widespread pollution processes.

The PPP, widely adopted among OECD countries, is both a principle of cost allocation (who pays for pollution prevention and control) and of cost internalization (which costs and how much of each the polluter must pay). It is considered a non-subsidization principle, and in this sense is compatible with multilateral trade rules even if it has not been formally incorporated (Tobey and Smets, 1996; Barde, 1994). Policy instruments associated with the PPP include regulations – the command and control (CAC) approach – and market instruments. The CAC approach consists in the passing and enforcement of laws, technical regulations and standards with which polluters must comply. Economic instruments other than subsidies (for example, emission, user and product charges or taxes; marketable permits; and deposit-refund systems) provide market signals in the form of modifications to relative prices and/or financial transfers, and are usually referred to as Pigovian taxes. Although mostly advocated in relation to pollution control, similar mechanisms can be for natural resources management (Barde, 1994; de Castro, 1994).

Cost internalization in agriculture faces the complexities of managing "non-point" sources of pollution: in effect, with the exception of livestock feed, it is very difficult to directly link polluters and polluting practices with emissions, because pollution is normally diffuse, emissions occur over a dispersed area, and the impact may not be perceivable in the short term (Tobey and Smets, 1996). Differences in endowments of key environmental factors such as soil, rain and climate mean that a given practice that may be unsustainable in some regions may have a different effect in others. Furthermore, pollution is linked with the managerial practices and input choices of each producer, which are very difficult to control and supervise. For these reasons, levels of direct and indirect agricultural pollution abatement costs in industrial countries are very low being estimated as less than 1% of total production costs (Tobey and Smets, 1996; Beghin et al., 1994).

Therefore, the CAC approach remains the most applied environmental policy, although there is evidence to suggest that the use of economic instruments is becoming more widespread (OECD 1994a; Tobey and Smets, 1996). Examples of CAC measures in industrial countries include: penalties for the conversion of wetland on farmland; restrictions on fertilizer and pesticide use and application practices; required plans for land disturbance; enforceable codes of agricultural practice; operating permits or restrictions on activities that may cause soil erosion; pollution emission standards; production standards for pesticides, fertilizers and farm machinery; information programs; and adoption by farmers of integrated pest management practices (Tobey and Smets, 1996).

Subsidies

Precisely because internalization poses such formidable challenges, subsidies are used increasingly to address agricultural point and non-point pollution in industrial countries. Subsidy schemes may include subsidies for environmental investments (e.g. facilities to dispose of livestock wastes), payments to farmers for the use of more environmentally friendly techniques, financial incentives to reduce farming activities on environmentally sensitive land, incentives to set land aside for environmental reasons, and training of farmers in environmentally sound techniques. Evidence remains limited and incomplete, but suggests that the magnitude of agricultural subsidies for environmental protection in industrial countries is not large, ranging from 1% of agricultural GDP in Europe to 4% in the United States. Nevertheless, there are growing concerns that, at least during the period of agricultural policy reform, old production-oriented subsidies will emerge in new clothing as production-enhancing support in the form of "green payments", and would attain magnitudes so high as to continue the distortion of markets, even if these subsidies are not supposed to affect production and commercial flows.

Therefore, the provision of environmental subsidies raises the question of compatibility with multilateral trade rules. Exceptions to the non-subsidization rules were stated at different opportunities by the OECD. Environmental exceptions are contemplated in WTO commitments. Besides paragraphs (b) and (g) of Article XX, which relate to measures necessary to protect human, animal, or plant life or health and to those concerned with the conservation of exhaustible natural resources (see Tussie and Vásquez, Chapter 6 in this volume), the Final Act of the

Uruguay Round provides a more strict and comprehensive framework for dealing with agro-environmental subsidies. Whereas specific subsidies for the exploitation of natural resources are not included in the exemptions to actionable subsidies accepted in the Agreement on Subsidies and Countervailing Measures (see Sáez, Chapter 2 in this volume), environmental subsidies are accepted in the Agreement on Agriculture. Subsidies in this context (the so called "Green Boxes") must have no, or at least minimal, trade-distorting effects: support should be provided through a government programme, should not consist in price support to producers, and should be limited to the extra cost or loss of income involved in complying with the government programme (including conditions related to production methods or inputs).

The above review of the PPP and subsidies as alternative instruments shows that at the core of the problem is a question of opposite impacts on competitiveness (Vossenaar, 1993; Pearson, 1993; Beghin et al., 1994). Countries that opt for a subsidy scheme will enjoy a competitive advantage relative to countries that are more oriented to a "polluter pays" approach. This is probably the most important reason for the increasing use of environmental subsidies in industrial countries.

CONCLUSIONS AND POLICY OPTIONS

The relationship between international trade and the environment in the case of agriculture is complex, and in many cases contradictory. Trade-generated growth has three main effects: a scale effect, which imposes additional pressures on the environment; a composition effect, involving changes in international specialization towards more or less natural-resource-intensive activities; and a technical effect in increased access to more environmentally friendly technologies (Grossman and Krueger, 1991). Assessing the possible outcome of these effects on agriculture in any particular developing country is a question of empirical research and a case-by-case analysis. More empirical analysis is needed so as to arrive at a better and more comprehensive understanding of the trade and environmental linkages as well as the effects of different policy instruments. The review presented in this chapter has shown that the market in and of itself will not provide positive incentives to environmental preservation, as seems to be the case in industry (Motta Veiga, Chapter 4 in this volume). The incentives provided by trade may be perverse, and the role of income growth may not be sufficient to induce

sustainable production. Better monitoring of the impact of trade liberalization on the environment is required, since active international and national policies could be called for in order to correct undesired and unexpected negative environmental impacts.

From a general perspective, there is a trade-off between the increase in environmental degradation and the economic benefits deriving from the expansion in trade. For many developing countries, this trade-off expresses the strategic dilemma between the short-term need for export earnings and increased degradation of natural resources. Trade liberalization tends to encourage exports of goods that are intensive in natural resources, with growing and sometimes unsustainable pressures on the environment. Poorer countries, with strong budgetary constraints, will give more priority to growth than to environmental conservation. In the absence of multilateral or regional cooperation schemes and technological progress for the protection of the environment, it is likely that economic growth associated with free trade will aggravate environmental damage in these countries, which in turn will compromise growth in the long run.

The challenges faced by developing countries concerning the preservation of their natural resource bases and the environment are more than significant. In the first place, correcting policy failures and the underpricing of environment and natural resources appears to be a requisite for applying appropriate environmental policies (Barde, 1994; de Castro 1994; Barbier, 1991; Torres Zorrilla, 1994; Trigo and Kaimowitz, 1994). Such a reform includes macroeconomic policies (changes in exchange and interest rates or in tariff policies that indirectly induce the over-exploitation of natural resources), as well as sectoral policies (input and output price controls, taxes and subsidies) and project-related policies. Yet this task is not without difficulties. Impacts of government policies on the environment are complex and sometimes difficult to discern, and not all changes in macroeconomic and sectoral policies may work to the advantage of the environment. In some cases, for instance, agricultural subsidies might be contributing to resource degradation (inducing overuse of agro-chemical inputs); in others, subsidies might be necessary to increase production and encourage sound environmental practices. When market failures are present, the policy trade-off between promoting agricultural growth and environmental degradation must be also taken into account. Once again, a case-by-case analysis is required.

Second, applying environmental policies in developing countries is not straightforward. The common presumption is that these policies may not be in place, enforced, or appropriately designed. Internalization of environmental externalities is practically non-existent, because of time and

monitoring costs, and scarce institutional capacities and administrative skills. Direct estimates of abatement costs are very rare in developing countries. Additionally, internalization of environmental externalities may affect international competitiveness. For instance, cost estimates of suggested environmental regulation for Malaysian palm oil presented in Beghin et al. (1994) show that while they are small for processing industries (5% of production value), they are very high for commodity producers (up to 40% of production value). Command and control regulations are also often limited in these countries by poor functioning of judicial, administrative, monitoring and enforcement procedures. Furthermore, financial resources are not always available for these policies.

Third, subsidy schemes for environmental purposes, as developed in industrial countries, are difficult to envisage in developing countries, because there is fierce competition for the use of scarce government financial resources for other, more urgent domestic problems. Finally, there is the issue of export restrictions. Even if they might be necessary for transitional periods while first-best policies are put in place, they are not the most appropriate instruments to address the environmental problems in the market-oriented context now prevailing in developing countries. Moreover, export controls are in fact very difficult to envisage, given the globalization of the world economy and the ongoing trends towards trade liberalization.

In spite of these significant challenges and difficulties, national and international support policies must be foreseen and encouraged, as market forces alone will not guarantee resource conservation. The most appropriate response seems to lie in the coordination of environmental policies with agricultural and trade policies. This action must be accompanied with the necessary institutional and legal reforms, and the strengthening of local managerial capacities, in order to manage natural resources rationally and to improve – or at least not to impair – environmental quality in the face of trade growth. When possible, subsidies coupled with regulatory frameworks must be proposed. Subsidies hitched to natural resource preservation, and the creation of investment funds to reclaim natural resources, financed by a tax on resource-depleting activities, are other possible policy instruments (Ford Runge, 1996; Trigo and Kaimowitz, 1994).

Strengthened international cooperation and technical assistance is needed for institutional and financial capacity-building to internalise environmental externalities. In the future, the promotion of scientific and technological development, more formal and informal education, the diffusion of modern and more friendly environmental techniques, and a greater national and international environmental awareness, will be essential tools for achieving sustainable development.

4 Environment-related Voluntary Market Upgrading Initiatives and International Trade: Eco-labelling Schemes and the ISO 14000 Series

Pedro da Motta Veiga

This chapter analyses some environmental standard-setting initiatives that should produce non-negligible impacts on international trade flows in the near future, especially on developing countries' exports. Although compliance with the standards here analysed is voluntary – in contrast to mandatory regulations – they can, under specific conditions, affect the access of developing countries' exports to developed countries' markets, putting a burden on the competitiveness of exports. The initiatives under analysis are the setting of eco-labelling schemes in OECD countries, especially in the European Union (EU), and the design of a series of environmental management standards by the International Organization for Standardization (the so-called ISO 14000 series). The first initiative is unilateral (or minilateral), while the second one is multilateral, which makes the comparative analysis of those processes of environmental standard-setting particularly interesting.

SOME CONSIDERATIONS ON ENVIRONMENT-RELATED VOLUNTARY MARKET UPGRADING INITIATIVES

The initiatives analysed in the following sections present some features that suggest their compatibility with GATT/WTO rules, for several reasons. In the first place, compliance with these standards is voluntary: the assessment of the costs and benefits of complying is up to the firms.

Second, these are standards governing performance, not design. In other words, they "require the product to meet a certain objective but permit it to do so through alternative designs" (Sykes, 1995), which suggests a standard-setting model both flexible and with restricted discriminatory potential as regards different process and production methods (PPMs). Third, both standard-setting processes offer the prospect of new business opportunities for developing countries' exports, through the marketing of "environmentally friendly products" (EFPs). At least in theory, these new opportunities could be significant enough to compensate developing countries for the potential threat associated with the standard-setting process, allowing them to benefit from market "niches" in OECD countries.

This positive assessment of a standard-setting system, based on the hypothesis that firms will apply for labels or other environmental quality certificates, surely takes into account very important features of this system. However, it neglects some other features that could amplify the trade discrimination potential of voluntary market upgrading (VMU) arrangements. The effectiveness of VMU schemes depends on their capacity to induce product differentiation, such differentiation being based on attributes of "environmental quality". However, economic costs associated with the effort of complying with these standards could prove too high in relation to the value attributed to the heterogeneity induced by the scheme. Besides, such costs could be relatively greater for foreign suppliers, and, in some cases, compliance by foreign producers could require access to some proprietary technology over which domestic firms have control (Sykes, 1995). Should this happen, the principle of non-discrimination, basic to the multilateral system, would be jeopardized and the impact of those schemes on international trade would prove significant.

It is essential to distinguish the discriminatory potential of the VMU schemes from unilateral (or minilateral) and multilateral schemes. In unilateral schemes the risks of discrimination associated with the "capture" of regulatory and standard-setting processes by domestic producers tend to be higher. In this case, interested parties have effective access to the standard-setting process, while foreign producers are excluded from it. As a result, the standard-setting process becomes a mechanism for excluding rivals from competition in the domestic market, rather than a tool for the protection of consumers. Moreover, the proliferation of unilateral schemes increases the transaction costs of exports, in so far as the risks associated with exporting activities are increased and exporters have to gather information on the various schemes in order to adapt their products to the specific requirements of each national standard – a situation that may have a negative impact on

efficiency. In addition, exporters have to deal with different conformity assessment procedures in the countries of destination for their products. In each of these stages, the costs of compliance with unilateral standards tend to be higher for foreign than for domestic producers.

These features suggest that the design of standards and the implementation process itself can have a protectionist effect, favouring domestic over foreign producers. The protectionist bias may be introduced through the decision-making process, the establishment of criteria and parameters and the system selected for the assessment of conformity. Concern over this possibility is sharply increased in the case of unilateral (or minilateral) VMU schemes. Although the discriminatory potential of VMU schemes is unquestionably associated with the standard-setting process, the effectiveness of these arrangements (measured by their ability to induce product differentiation) seems to depend on other factors, of three principal types. The first are market factors, such as price-elasticity of demand, market structure, the role of price and quality in the sectoral pattern of competition and the presence of a high replaceability among products. All these market-related factors affect the ability of firms to absorb "internalization costs" resulting from the effort to comply with the standards of VMU schemes and, beyond compliance, to use the schemes as an element of production and marketing strategies. For instance, Markandya (1994a) states that in sectors where environmental quality is a part of the overall quality of products, it is doubtful whether exporters in developing countries would be in a position to raise their prices because of environmental improvements in products or PPMs.

The second group of factors relates to the size of firms, as size seems to be a relevant variable in explaining access to information and technologies, especially when access by small and medium enterprises (SMEs) in developing countries to developed countries' information and technology markets is involved. According to Markandya (1994a), large firms from developing countries, through direct contact with foreign buyers, have easier access to the technology and information assets needed to comply with foreign requirements than SMEs.

The third set relates to societal features, such as the values and priorities each society associates with the environmental issue, as expressed in consumer preference for environmentally-friendly products (EFPs). This is a crucial variable in explaining effectiveness of VMU schemes. The presence (or absence) of demand for EFPs determines the potential for developing production and marketing strategies based on a product's environmental quality.

The development of eco-labelling initiatives in the EU seems to be linked to the social priority given to environmental protection. According to Sykes (1995), the treatment given to the harmonization of technical standards in the EU relies on the principle of mutual recognition, although the EU admits that, in specific fields, countries "opt out of a (community) directive to recognize the standards developed elsewhere". Among these areas, life protection, human, animal and vegetal health and environmental protection should be highlighted, since they provide the basis for legitimately invoking the escape clauses established by the Treaty of Rome and the new directives that embody the EU's so-called "new approach" to harmonization and mutual recognition of technical standards.

If indeed the standard-setting process for VMU schemes is liable to have a discriminatory effect against foreign producers, this is to a great extent because the characteristics of these standards are related to PPMs. This applies to both eco-labelling schemes and to the ISO 14000 series, since both incorporate the product's life-cycle analysis methodology. These are concrete examples in which, although the core issue does not involve the generation of cross-border externalities, there is some level of demand for the international harmonization of product standards and processes.

The Uruguay Round Agreement on Technical Barriers to Trade (TBT) includes PPMs-related (voluntary) standards and (mandatory) regulations "closing one of the most important loopholes left by the Tokyo Round" (Sykes, 1995:78). This extension of the scope of the TBT Agreement also includes conformity assessment procedures, and thus it is no longer limited to the establishment of standards and regulations. On the other hand, although GATT has established a clear distinction between standards applying to products and those applied to processes, a strict specification of products may lead to the choice of specific production methods and processes, and the enforcement of product regulations may call for the verification and inspection of production methods.

These considerations suggest that PPMs-related standards and regulations may have, in principle, a high discriminatory potential across countries, even though their criteria are aimed at governing performance, not design. If foreign products are forced to demonstrate compliance throughout their life-cycle with PPMs-based criteria designed around the importing country's regulations and standards then they will be at a clear disadvantage compared with domestic products, as regards not only their ability to comply with the set criteria, but also access to conformity assessment processes. Some eco-labelling schemes, such as Canada's, acknowledge that the regulatory or standard compliance test must refer

solely to the environmental criteria of the exporting country. In this case, eco-labelling schemes are said to accept variations in PPMs-based criteria across countries, according to their assimilative capacities and social preferences (UNCTAD, 1994a), thus avoiding the temptation of imposing standards and rules extra-territorially.

A CASE OF AN INTERNATIONAL VOLUNTARY MARKET UPGRADING SCHEME: THE ISO 14000 SERIES

The International Organization for Standardization (ISO) was formed in 1947. According to Sykes (1995), the push for the establishment of ISO came from the United Nations, following a breakdown of certain earlier standards organizations during World War II. The ISO has an unlimited jurisdiction, and in principle it may undertake standardization initiatives relating to any product or service market. The ISO is funded by its members, which are country representatives, either government agencies or private sector entities.

The decision-making process in the ISO begins with the establishment of a working group or a committee of technical experts to analyse the possibility of setting standards in a specific area. Hence, if the committee can reach a reasonable "consensus" among its members, it develops "recommendations" to be sent to member bodies for approval. A recommendation becomes a standard after a sufficient number of member bodies accept it. Until the 1970s, the ISO had a unanimity rule, which was later turned to a 75% rule, for determining when to convert a recommendation into a standard. Once this conversion is made, ISO member nations are under no obligation to adopt the standards in their markets, even if they have voted in favour. However, the decision to set a standard, based on a wide majority of votes, suggests that widespread adherence to it will follow.

Enforcement of ISO standards (and those of other international standard-setting entities) is not covered by international law, but experience indicates that many potential technical barrier issues can and will be addressed reasonably well. Developing countries may protect themselves against the emergence of many technical barriers to their export simply by ensuring that their domestic industries participate effectively in these organizations.

In August 1991, the ISO established its Strategic Advisory Group on the Environment (SAGE), to assess the possibility of creating international

standards for environmental management and to evaluate whether those standards could be used to promote a common approach to environmental management, similar to the model adopted for quality management, that would increase organizational ability to reach and measure improvements in the environmental performance of firms, facilitate international trade, and remove trade barriers (Vilmar, 1995). In March 1995, the SAGE concluded its work confirming the possibility of reaching those three goals through the setting of international standards for environmental management. Hence, the ISO established a new technical committee – TC-207 – to develop international standards in this field. TC-207 was split into six sub-committees, covering different areas: environmental management systems, environmental auditing, environmental labelling, environmental performance assessment, life-cycle assessment and environmental features in pattern-products. The whole series is in essence a comprehensive checklist of practices needed to achieve rigorous compliance with environmental legislation, anticipate environment-related problems, and measure the consistency of environmental performance.

The standard ISO 14000 provides the principles and elements of an environmental management system (EMS), which is said to be an integral part of an organization's overall management responsibility. In this sense, the EMS should be coordinated with existing efforts in other areas of an organization. Special reference is made to small and medium enterprises (SMEs), where resource base and organizational structure can limit implementation. Besides suggesting for SMEs the adoption of cooperative strategies with larger clients, other SMEs, standardization organizations and research centres, the standard recognizes that SMEs may have unique needs and that this should translate into the choice of specific paths towards the implementation of standards.

In accordance with this guideline, standards have been formulated "to be applicable to all types and sizes of organizations and to accommodate diverse geographical, cultural and social conditions" (ISO, 1994: 10). Hence, they do not "establish absolute requirements for environmental performance beyond commitment, in the [organization] policy, to compliance with applicable legislation and regulations and to continual improvement" of its EMS. As a consequence, these standards are not "intended to change or increase an organization's legal obligations".

In Appendix A to ISO Standard 14000 (*Environment Management Systems – General Guidelines on Principles, Systems and Supporting Techniques*), examples of environmental guiding principles are provided. Principle 12 refers to uses of environmental measures in trade policy. It

states that "unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus" (ISO, 1994: 48). This is the only reference to trade issues in both ISO 14000 and ISO 14001 (*Environmental Management Systems – Specification with Guidance for Use*). While the former details the steps to implement an EMS, the latter describes the core elements of an EMS environmental policy planning, implementation and operation, checking and corrective action, and management review.

These documents reveal that the ISO 14000 series should constitute a powerful tool for voluntary market upgrading. Among the potential benefits associated with an effective EMS, the ISO 14000 standard refers to "meeting customer's environmental expectations" and "enhancing image and market share", thus leading to the achievement of "significant competitive advantage" (ISO, 1994: 8). Accordingly, the draft document of the ISO 14040 standard on life-cycle assessment (LCA) emphasizes the possibility of using this specific tool for marketing a company's products and/or services. The limits of LCA methodology are clearly stressed in this document: it necessarily involves "assumptions, value judgements and trade-offs, and therefore is not a purely objective scientific endeavour". In addition, LCA "is one of several environmental management tools and may not always be the appropriate tool to use in all situations". Besides these features, "the results of an LCA focused on global and regional issues often are not appropriate for local applications", and "the judgement of environmental disturbance is a subjective procedure and reflects factors such as social values and preferences". Accordingly, it is stressed that, while maintaining its technical credibility, LCA should be "flexibly, practically and cost effectively applied so that it is consistent with the differing goals and needs of relevant stakeholders".

Some concern on the use of environmental management tools is found in the draft of ISO standard 14020, dealing with environmental labelling. This draft establishes nine principles aimed at providing the process of eco-labelling-setting, with attributes such as accuracy, accountability and transparency. Accordingly, "the factual and technical basis for environmental labels/declarations must be verifiable", and "information concerning the procedure and methodology used to support environmental labels/declarations shall be available and provided upon request to all interested parties" (ISO, 1995a: 5).

Although stressing that the development of such labels "should,

wherever appropriate, take into consideration the life cycle of the product or service", it is admitted that "the extent to which the life cycle is considered may vary depending on the type of ... label, the nature of the claim, and the product category" (ISO, 1995a: 7). The issues relating to the presence of requirements that generate "unnecessary cost and administrative complexity" for firms interested in obtaining the label are also a matter of concern for the ISO members, according to this standard. That is why Principle 9 of the draft suggests that criteria and standards applicable to eco-labels should be developed through a consensus process involving all interested parties. The possibility of procedures and criteria for environmental labels or declarations creating "unfair trade restrictions" or "discriminating in the treatment of domestic and foreign products and services" is explicitly rejected through Principle 7 of the standard, which describes "instances of potentially unfair trade barriers" (ISO, 1995a: 7). Among these instances, some are worth mentioning: "requirements to meet specific national or local legislation, regulations or standards, rather than performance objectives"; "restrictions on testing methods", discriminating against foreign producers; "administrative requirements which limit access by foreign producers to activities or programs related to environmental labels/declarations or their ability to comment on the development of criteria for environmental labels/declarations"; and "requirements to conform with nationally developed technologies or manufacturing process".

Most of the criticism of existing unilateral eco-labelling schemes on the grounds of non-discrimination against foreign producers are explicitly mentioned in the draft of ISO standard 14020. A task group created by the working group in charge of designing this standard prepared a discussion paper on Principle 7, which recognizes that discrimination against foreign producers can result from the establishment of eco-labelling schemes, "despite the voluntary nature" of these programmes (ISO, 1995a: 9). In a previous version of the draft, additional comments were a part of Principle 7: the first one "provides examples of suggested criteria which may legitimately be adopted and used to discriminate between products". The second one "provides examples of suggested objectives which, if attained, may eliminate or reduce the potential for standards and criteria to create unfair trade barriers". As concerns have been raised about the relationship between these additional sections and international trade rules (GATT/WTO) or multilateral environmental agreements, the comments were deleted from Principle 7 and set out in italics in the last version of the draft.

The instances in which trade restrictions should be admitted would

include, according to the previous text, "items covered by international conventions and treaties, such as ozone-depleting substances, endangered species, etc." and "products or services which current scientific data show to have a harmful effect on the environment or public health of the country that is imposing the restrictions". So it does not go beyond GATT Article XX and the Agreement on Sanitary and Phytosanitary Measures of the Uruguay Round.

The objectives to be followed so as to "reduce any potential to unduly restrict trade" are the "recognition of environmental improvements in different countries as potentially equivalent based on their overall purpose and significance, even if the improvements are different in nature (e.g., aspect of environment affected)", and "mutual recognition among environmental labels/declarations based on equivalency of procedure, criteria, and objectives".

The working group in charge of elaborating this standard is now considering three different options for the text of Principle 7, and these options differ not only on the kind of reference to be made to multilateral environmental agreements and to international trade rules, but also on the circumstances where discriminatory criteria should be identified as legitimate under these agreements and rules. A broad consensus among the members has not yet been reached, and the issue is very important for the future role of ISO 14000 series within the whole regulatory framework set up to manage TBT. The main merit of the ISO 14000 initiative is that, despite its limited capacity to discipline national policies and to police technical barriers, international standards like the ISO's can produce a paradigmatic effect on existing and future national (or regional) standards by preventing protectionist uses of those standards, contributing to the process of confidence-building among countries and making deviations from international standards and decisions that disadvantage foreign suppliers more evident and politically more costly. These features underline the benefits of "plurilateral bargains", as compared with "unilateral assessments" in the setting of voluntary environmental standards (Nicolaidis, 1995).

While international issues seem to be adequately addressed in ISO-like processes of standard-setting, a problem does exist in the access of SMEs – mainly those from developing countries – to the certificates these processes are supposed to provide. This issue is recognized explicitly in the ISO 14000 series drafts, and some suggestions related to co-operative initiatives with larger firms and other agents are made, in order to facilitate SMEs' access to the standards. For developing countries, the first step to reduce their handicap in this matter is to take an active part in the process of

international standard-setting, not only through their representatives to the ISO but also through domestic organizational arrangements.

In Brazil, the prevailing model is based on the establishment of a working group (GANA – Grupo de Apoio à Normalização Ambiental) bringing together big companies and some private and public institutions like Confederação Nacional da Indústria (CNI), Banco Nacional de Desenvolvimento Econômico e Social (BNDES) and Associação do Comércio Exterior do Brasil (AEB). As far as this initiative is concerned, SMEs are not participating in the domestic discussion of the standards drafts. Besides the lack of information and of institutional infrastructure to bring SMEs into the debate and negotiations, they are likely to face a serious restriction related to the economic costs of certification. The only Brazilian firm with a British Standard 7750 (specifically geared towards certifying the quality of an environmental management system) operates in the pulp sector and, according to its directors, the cost of this certification reached almost US$400,000.

A CASE OF A UNILATERAL VMU SCHEME: ECO-LABELLING IN THE EUROPEAN UNION AND THE IMPACT ON BRAZILIAN EXPORTS

UNCTAD (1994a: 6) has defined eco-labelling "as the award of a label by a *third party* to products which are *relatively* more environment-friendly than others in the *same category*, on the basis of *pre-set criteria*". These labels aim at informing consumers about the environmental quality and attributes of a product. Although compliance with eco-labels criteria is voluntary, some factors suggest that this kind of unilateral (or minilateral) initiative can generate discrimination between domestic and foreign producers, favouring the former. These factors are related to the standard-setting process itself, and to the different degree of access that domestic and foreign producers have to this process. In addition, they include the selection of criteria and priority features of PPMs to be assessed: in general, those features focus on specific environmental attributes that can be attained more easily by domestic firms, and overlook environmental advantages of imported products (UNCTAD, 1994a). They also refer to the fact that eco-labelling schemes are based on a product's life-cycle assessment, which amplifies their potential trade effects. Finally, the potential for trade discrimination is enhanced by the different costs of

certification for domestic and foreign producers. As eco-labelling schemes proliferate, they increase transaction costs for foreign producers.

Although only a small number of notable export products from developing countries are covered by the eco-labelling schemes now in force, these figures show a clear increase. In fact, of the 25 categories of products for which criteria are being set under the aegis of the EU, at least eight are on the list of Brazilian exports, in varying quantities. These include various types of paper, packaging, textiles, ceramics, footwear and refrigerators. According to UNCTAD (1994a), around 45 percent of the imports in broad product categories that have been earmarked for eco-labelling in the EU originated in developing countries. On the other hand, in so far as the so-called "dirty" industries are perceived as constituting a large proportion of exports from developing countries, it may be assumed that eco-labelling initiatives could have a negative impact on natural resource-intensive industries and on heavy polluters, for whom the costs of compliance with environmental criteria in relation to the total production and investment costs would be particularly high.

EU Eco-Labelling Systems and the Brazilian Textile Sector

Brazil's textile industry is characterized by technological and managerial heterogeneity. Within the same market segment, one can observe the coexistence of modern companies that operate with advanced technological standards and strategies, partially modernized companies with updated equipment at strategic stages or old machinery run under rigid quality controls with advanced design skills, and a large number of companies with outdated technological and managerial standards.

A relatively small number of companies account for the huge bulk of textile exports from Brazil (Garcia, 1993). Among the 456 companies that exported textile products from Brazil, the 10 largest firms accounted for 46% of the total exports, and the share of the 20 largest firms was as high as 60% of the total. It should be noted that all are sizeable companies with over 500 employees. Exports are dominated by intermediate or finished products using natural fibres, particularly cotton. Approximately 47% of threads and 73% of textiles exported in 1991 by Brazil used cotton. Among textile products that incorporate natural fibres (cotton, silk, jute) grown in Brazil, for certain types of cotton skeins, Brazil's share in international markets reached 6.5% and cotton bedsheets 4.7%. Export orientation makes the sector particularly sensitive to life-cycle analyses of

products using environmental criteria related to the production and use of cotton fibres. Managers of large export companies seem quite aware of this fact, and are attempting to incorporate this variable in their strategies.

A variety of private eco-labelling schemes are currently being proposed by EU countries (Jha and Zarrilli, 1994). The German textile industry has proposed a product label – MST – and a process-related label – MUT. Under both schemes, criteria would cover air, soil and water pollution during the production process. German industry has already introduced targets for processes with criteria for the use of power, chemical products and pollution emissions, which places it in a favourable position compared with imported products. Additionally, very strict criteria on the use of dyestuffs may also force companies aiming at the German market to import such materials from Germany, and might cause discrimination against natural dyes produced by developing countries. An association of German and Austrian research institutes has also developed the ECO-TEX scheme, which defines criteria that basically focus on controlling the possible impact on human health resulting from the use of textiles. Production standards are similar to those of German labels, and the effect expected on competition in the domestic markets also tends to be the same.

Under the aegis of the eco-labelling schemes launched by the EU in 1992, Denmark was appointed as the lead country to develop and propose eco-criteria for T-shirts and bedlinen made of cotton or cotton-and-polyester blends. The criteria developed refer to different stages in the life-cycle of the products, particularly to the raw material production process, the fabric manufacturing process and, to a lesser extent, to finished products. These may thus constitute a benchmark not only for the specific products (T-shirts and bedlinen) but for textile products in general.

Recent interviews with major exporters in the clothing sector showed that large firms are adapting to and coping with environmental demands made directly by their European importers, particularly the Germans. Although these requirements have not yet had a major effect on their exports, they have generated additional costs in view of the test carried out for certifying exported products. The requirements formulated by the importers covered various aspects of the production process, such as the use of production processes that give rise to pollutive discharges during local production by the company, the use of raw materials considered toxic, and use of production processes considered virtually unacceptable in terms of noise or air pollution emission. Compliance would involve alterations in the production process, increased demands for compliance with environmental standards in the companies' procurement policy for

input and raw materials, the installation of pollutant emission control equipment and changes in the presentation and packaging of products.

Most of the cotton bought by the Brazilian clothing industry used to be produced in Brazil, with low pesticide use and harvested mostly by hand. With large-scale cotton imports by Brazilian industry on the rise, the interviewed companies admit that they are not in a position to state that their cotton is pesticide-free. Chemical inputs are supplied to the textile industry by a restricted group of multinational companies with production plants in Brazil. Their supply of products in Brazil depends on the characteristics of local demand, which is generally not very exacting as regards quality and environmental criteria. This means that chemical companies continue to produce in Brazil inputs that are no longer used in Europe or United States, or perhaps have even been banned. Brazilian demand for products compatible with European environmental regulations therefore originates in major exporters of textile and clothing. Although they exert pressure on chemical industries to supply the inputs required by European legislation, through either local production or imports, they are unwilling to pay higher prices for them, as this would affect competitiveness. As noted below, this fact reflects the specific market power of the major export companies, and this pattern of interaction with the chemical industry does not correspond to the small and medium-textile and clothing companies in the segment.

However, smaller companies with lower adaptive capacities consider that the investment to comply with EU eco-criteria will increase their production costs. For them, compliance with most of the criteria essentially depends on renovation of machinery and equipment. The vast majority of small- and medium-sized companies, however, are not in a position to make investments in modernization. Reduction in domestic consumption is accompanied by shrinking demands for quality in the local market, so that non-export-oriented companies see investments in modernization of equipment and concern with environmental criteria as something remote from their priorities.

This suggests that the key variable for defining the capacity – and the motivation – of companies to invest in modernizing the production process, whether or not this is done specifically to comply with environmental criteria, is the importance of exports in corporate strategy, particularly in view of the increasing gap over the past few years between quality requirements levels in domestic and foreign markets, especially the EU and the United States. Even among export companies, there are substantial differences between the production processes and the products

earmarked for the local and foreign markets. These differences involve the quality of the final product, while segmentation between production lines geared to domestic and foreign markets within the plant implies that positive externalities, which could derive from the contracts with foreign markets, do not spill over into the domestic line of production.

In sum, for small- and medium-sized companies, none of the criteria is easy to comply with, on account of the shortage of funds for investment and the lack of adequate incentives to encourage compliance. These difficulties increase in step with more stringent requirements (associated with the criteria) for new investments, and the capacity and power of negotiation with the suppliers of raw materials and inputs. For major export companies, on the other hand, none of the criteria presents great difficulties, as investments in modernization of equipment are a prerequisite for their participation in the international market. As they export to markets that are environmentally demanding, incentives to make additional investments in modernization and environmental management may increase and even become economically profitable.

The Footwear Sector

Brazil ranks fourth in the world's footwear sector: its 1990 output consisted of 42% plastic and rubber and 41% leather footwear, with the remaining 17% concentrated in sports shoes. Approximately 28% of Brazilian footwear production was exported that year, but the export profile differs substantially from the production profile. In fact, 92% of exports consists of leather footwear, which makes this segment essentially an export activity: almost two-thirds of the output is earmarked for foreign markets. This fact warrants particular attention, because Brazil's leather sector has an extremely high rate of residual pollution, especially by heavy metals.

In addition to channelling most of its leather footwear to exports, these activities take place in a very specific pattern of industrial organization, characterised by concentration in two regional centres in southern Brazil – Novo Hamburgo in Rio Grande do Sul State (women's footwear) and Franca in São Paulo (men's footwear). This regional concentration of production has attracted new producers as well as manufacturers of input materials and equipment, while spurring the development of a technological and information infrastructure in these production centres. In addition to underwriting the participation of small and medium companies in the international market, this structuring endowed Brazil's export

footwear sector with enough flexibility to adapt itself to constantly changing rules and global market competition conditions. This explains the sector's remarkable export growth over the past few years, despite new Asian competitors in the international market.

This new competition led to a process of technological and managerial modernization in the industry. A recent study of the competitiveness of Brazilian industry noted that in the footwear sector some areas show technological lags, with a probable blunting of the competitive edge over competitors from Asia (Costa, 1993). Small companies, hampered by tight finances, face more difficulties in investing, which tends to accentuate this sector's technological heterogeneity. The use of basic microelectronic equipment, though not unknown to these companies, is still not very widespread. The dissemination of computer-aided design (CAD) is limited to a few companies, and the same applies regarding stitching machines, die-cutters and equipment fitted with microprocessors.

The Netherlands was appointed by the EU as the lead country for the definition of product categories and for the development of criteria and parameters for eco-labelling for footwear. The preliminary proposal mentions footwear made of leather, rubber, EVA, nylon, polyester and cotton, provided their combined share in the total weight of the shoe is at least 90%. These criteria and parameters cover the five phases of the product's life-cycle: acquisition of raw materials, production of materials, manufacture of the product, use of the product and waste-processing. The environmental aspects considered for each of the phases in the product's life-cycle cover the use of raw materials (renewable and non-renewable), energy consumption (including non-renewable), discharges and emissions, various forms of nuisance (health and environmental hazards), wastes, reutilisation of products and parts thereof (including through recycling) and the repacability and durability of the products.

A preliminary assessment suggests that major concerns are concentrated on energy consumption, the emission of toxic substances and the quantities of waste during the production phase of material, energy and waste during footwear fabrication phase, and, finally, emissions of toxic substances, wastes, repacability and durability during the use and waste-processing phases. The criteria and parameters defined on the basis of these concerns focus particularly on the production of leather footwear.

Brazil's major business associations representing the export sector are keenly aware of European eco-labelling initiatives. Nevertheless, this issue is often accorded lower priority than holding a competitive edge in export prices in the context of competition with Asian manufacturers, especially

China. The widespread feeling is that efforts to comply with eco-labelling criteria would increase production costs and product prices, making them still more vulnerable to Asian competition.

Large companies have shown concern over the difficulties in obtaining information, e.g., on inputs, as their suppliers are not yet capable of providing this. Brazilian companies are already taking steps to ensure the safety of chemical products and dyestuffs used in production processes. Many of the products under restrictions mentioned in the EU document are no longer in use. The substitution of these products resulted in higher final costs for footwear, but they are difficult to measure without detailed study. As for chrome emissions, tanneries now discharge twice the required limit. New investments would be needed in order to upgrade the efficiency of existing treatment stations. The use of PCP (pentachlorophenol) as a leather preservative is already banned in Brazil. Imported hides should comply with the guarantee certificates ensuring that PCP is not used. With increasing leather imports from neighbouring countries, this requirement will have a growing effect on the relationship between Brazilian footwear companies and Uruguayan or Argentinian tanneries. The emission of volatile substances into the atmosphere is a major problem during the leather finishing stage. Water-based products for finishing leather are available, and the replacement of products based on organic solvents is already under way. At other production stages, the emission of volatile organic substances is virtually negligible.

In general, Brazil's companies are perceived to be in a position to produce footwear that meets eco-labelling standards, but costs would be appreciably higher than for conventional products, although no data are available to measure the increase. The adaptation of the production process and the use of materials complying with these requirements becomes viable only if plans are made to develop a line of products targeting a market niche capable of paying for footwear with the characteristics required under this scheme. Even in this case, companies would need time to adapt to such criteria and parameters, especially as adaptation involves the relationship between the producers and their suppliers of input materials (leather, plastics and chemicals). The Brazilian footwear sector feels that many of the difficulties in adapting to these criteria arise from the necessary changes in the production process of leather – a core material for Brazilian exports.

Historically, the relationship between the leather and footwear sectors in

Brazil has been characterised by a low level of cooperation. Companies in the footwear sector have responded to this situation through verticalization (purchase of tanneries) and increased imports from neighbouring countries (Argentina and Uruguay). In turn, this has prompted the leather sector to shift towards modernization, a trend which, in the medium term, may streamline compliance with eco-labelling requirements.

CONCLUDING REMARKS

If we compare EU eco-labelling schemes and the setting of ISO 14000 standard series as competing paradigms for the treatment of the international diversity of PPMs and of their environmental impacts, some preliminary conclusions can be drawn. From the point of view of developing countries, the ISO 14000 standards setting seems to be a "friendlier" process than the setting of eco-labelling schemes in the EU. Not only is ISO 14000 from the beginning a multilateral negotiation, but also the setting of these voluntary standards presents some features that restrict the emergence of discriminatory international effects on trade. First, ISO 14000 standards assess an environmental management system (EMS) that is a broader and more flexible concept than the one of PPMs. Unlike EU eco-labelling schemes, ISO 14000 does not define specific criteria and parameters that could implicitly require the use of specific technologies or PPMs and then discriminate against foreign producers. Second, unlike eco-labelling schemes, which are based on life-cycle assessment, ISO 14000 does not propose the use of an exclusive methodology, especially when it involves assumptions, value judgements and trade-offs. Third, ISO 14000 standards show an explicit concern with regional and local conditions, rejecting at the same time the adoption of measures and criteria that could generate trade discrimination and imply the practice of "extra-territoriality". Fourth, as stressed by the draft of standard ISO 14000, absolute requirements for environmental performance are not established "beyond commitment... to compliance with applicable legislation and to continual improvement of the EMS".

Even though the potential trade effects of ISO 14000 standards seem to be limited, the possibility remains that the application of such standards will strengthen the structural dualism in developing countries between export-oriented firms acting in dynamic sectors and the universe of SMEs, as already seems to be the case for ISO 9000 norms. The dissemination of

VMU initiatives – including ISO 14000 standards – could also generate some opposition between developing countries and specially between middle-income and lower-income countries. In fact, in the middle-income countries, VMUs such as ISO 14000 standards could be used as a marketing tool not only for the export sectors, but also for import-competing firms threatened by lower-income countries exports.

If multilateral schemes are superior to unilateral or minilateral ones, they are nevertheless voluntary and, consequently, their enforcement falls short of ensuring that they will replace national standards. Furthermore, they will probably not be able to create a multilateral discipline for national standard-setting processes. In fact, the superiority of multilateral processes such as ISO 14000 standard-setting over unilateral schemes is only a starting-point for discussing the emerging regime-building issues in the field of trade and environment. Which kind of relationships should be established between VMU and the multilateral discipline applied through WTO? Which institutional and financial mechanisms should be created to ensure that multilateral and non-discriminatory rules prevail over national and protectionist practices?

To be sure, the control of discriminatory potential supposes, in the first place, that plurilateral bargains prevail over unilateral assessments in the standard-setting process. Subsequently, however, for plurilateral bargains to prevail over unilateral assessments for agreements on norms, the multilateral agreement must be granted reasonable means of enforcement, in order that a policed decentralisation mechanism may encourage countries to comply with international standards and to depart from national standards designed to protect domestic industry. The issue is then to identify the means and the ways to "multilateralize" the production of technical norms and standards, and to establish the superiority of multilateralism over unilateralism and even minilateralism for agreement on norms.

There are elements for an adequate approach to the multilateralisation of standards and regulation-setting initiatives in the convergence methodology used by the EU – under the auspices of the ISO or GATT, for example, high-level officials from interested nations might undertake to reach agreement on the "essential requirements" to be met by standards:

> Technical experts groups in the pertinent international standards organization ... might then undertake to draft standards to meet the essential requirements and might also be authorized to issue an opinion on whether existing national standards in various countries meet the essential requirements already. (Sykes, 1995: 132)

In addition, the definition of guidelines synthesizing the essential requirements would set forth the conditions for advancing toward mutual recognition of national regulations and standards, besides making policed decentralization of the standards by WTO easier.

As far as conformity assessment procedures are concerned, Nicolaidis (1995: 150) proposes cooperation mechanisms articulating WTO and the international standardization organizations, thus creating an accreditation system referred to as "a system of centralized auditing of decentralized policing", compatible with the scheme ISO has been developing, known as Quality-System Assessment Recognition, "for world-wide recognition of ISO 9000 quality management system registration". This system "would ensure that a certificate granted in one country would be recognized as valid worldwide". In fact, the point being discussed is the margin for autonomy that a multilateral discipline would allow national authorities in deviating from international standards. The Uruguay Round agreements require signatories to use international standards except when they would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, but this formula doesn't ask its signatories to determine that international standards are insufficient for the attainment of the domestic regulation goal before discarding them.

Once more using the EU as an example, Nicolaidis (1995: 145) suggests that some forms of managed mutual recognition could be used as a convergence methodology for national standards. This would be a "managed" methodology, "conditional upon the strengthening and setting up of extant institutional coordination and safeguard mechanisms" that "avoid the cumbersome harmonization pre-requisite for free trade while at the same time avoiding giving a total free hand to home countries".

5 International Pressure and Environmental Performance: The Experience of South African Exporters

Lael Bethlehem

This chapter concerns itself with a number of questions related to international environmental pressures on developing countries. How significant are the pressures on export companies? What is the nature of these pressures? Can they assist developing countries in raising their environmental performance, or will they act only as market barriers, without any discernible effect on environmental practices? Are international environmental pressures a positive influence to be welcomed by environmentalists and policy-makers, or do they represent a form of rent capture more likely to protect Northern profits than Southern forests? These questions also have important implications for our understanding of the market, and the relative importance of market-based pressures as opposed to regulatory ones.

The crux of these questions is how effectively the market is enforcing higher environmental standards. Can environmental concerns be left to the market for tradable goods? Or are market-based environmental pressures fleeting and fickle? These issues are addressed through a discussion of the experience of exporters in the small and relatively open developing economy of South Africa. South Africa is a good example of a country in which trade has an increasingly important role to play in development, and where domestic environmental regulation is relatively lax when compared with developed countries. South Africa's balance of payments constraint is a key factor in determining its development potential, and the ability to export manufactured goods will be critical to establishing a new growth path in the post-apartheid era. This is especially important in light of the long-term decline in gold and other mineral exports. Any potential constraints placed on South Africa's ability to export as a result of environmental trade measures could have a negative impact.

At the same time, however, international environmental pressures may also benefit South Africa by raising the environmental performance of national exporters. Although pressures are growing in South Africa itself, the levels of regulatory, consumer and civic pressures on industry are still much lower than they are in developed countries. Processes are currently underway to re-examine environmental legislation and to find ways of redesigning regulatory institutions. But these will take time to implement and will always be subject to resource constraints. In the face of regulatory weaknesses, international pressures could be helpful if they successfully induce export companies to raise their environmental standards more quickly and decisively that they would otherwise. South Africa then, faces a two-edged sword. The local environment could benefit from international pressures than raise the environmental performance of exporters, but trade performance could suffer from environmental trade barriers. This chapter analyses how significant this tug-of-war might be by exploring trade-related pressures on a sample of South African exporters.

Twelve different subsectors of manufacturing were selected for the study: aluminium, coal, chemicals, electricity generation, minerals processing, citrus fruit, packaging, pulp and paper, steel, soaps/detergents, textiles and timber. These were chosen either because a high proportion of their products are exported (see Table 5.1), or because their products had attracted particular environmental attention. The latter are electricity generation, which is a large contributor of greenhouse gases and therefore vulnerable to international agreements such as the Climate Change Convention, the packaging sector, which is critical to many other exports and subject to international pressures such as the European packaging laws, the soaps/detergents sector, which is an example of international pressure being exerted by the head offices of multinational corporations, and the wood and wood products sector, which is subject to international pressures on trade in forest products. The selection of sectors therefore reflects a sensitivity to a variety of international pressures rather than trade alone.

Although international pressures reported by firms are growing, firms seem to be adjusting in a fairly smooth fashion over a protracted period. The impact on exports as a whole does not seem to be seriously negative, except in the cases of a few firms. Adjustment to such pressures tends to raise environmental performance, although sometimes in issues or processes that may not be priorities for local conditions. In sum, international pressures in and of themselves can move the agenda, but cannot fully supplant local societal or public processes. Moreover, if South Africa continues to diversify its exports towards its neighbours in a post-apartheid era, the weight of Northern-based demands will begin to diminish as an element in firms' export strategies.

Table 5.1 Export markets and destinations, by sector, 1995

Sector	*Exports as % of production*	*Top 3 export destinations*
Aluminium	59	Taiwan South Korea Japan
Coal	49	Japan Netherlands Spain
Chemicals	25	USA Netherlands Zimbabwe
Citrus fruit	65	UK Saudi Arabia France
Paper and paper products	26	Taiwan Indonesia USA
Iron and steel	58	USA Japan Taiwan
Textiles	15	UK Zimbabwe USA
Wood and wood products	9	UK Germany USA

Sources: Industrial Development Corporation, Republic of South Africa, Outspan.

SOUTH AFRICA: KEY ECONOMIC AND ENVIRONMENTAL FEATURES

Having succeeded in its political transition to democracy, South Africa now faces the mammoth task of economic and social reconstruction.

Between 1985 and 1993, the economy was characterised by low rates of economic growth, with an annual average growth rate of 1.2%. Between 1990 and 1992, negative growth rates were recorded, and the equivalent of 6.5% of total non-agricultural employment was lost. Since 1993 there has been a significant recovery, with growth rates of 3.3% in 1995 and 3.5% in 1996, but the official rate of unemployment is 29%, and the country suffers from one of the highest rates of inequality in the world. The new government has designed a programme for the delivery of infrastructure and services, and has recently launched a new macroeconomic strategy aiming to achieve a growth rate of 6% by the year 2000.

One of the problems facing the South African economy, however, is the balance of payments constraint. This is influenced by two crucial factors. On the one hand, South Africa needs to import most of the capital equipment necessary for new fixed investment, as well as a significant proportion of intermediate products such as motor vehicle components. On the other hand, there has been a secular decline in South Africa's traditional exports (especially gold and other minerals), and manufactured exports are not growing quickly enough to fill the gap. As a result, there is an important balance of payments constraint in growth phases when the demand for imports rises more quickly than exports. The level of foreign reserves has been consistently low since 1993, and this problem is expected to be exacerbated by the relaxation of capital market controls after July 1997. As a result the economy is increasingly dependent on inflows of foreign capital, with all the insecurities that represents. In this context, the South African government has placed a strong emphasis on the need to increase the levels of manufactured exports. The macro-economic strategy aims for an annual average increase in manufactured exports of 8% over the next five years.

All barriers to international markets are therefore being addressed, and environmental barriers could be an important factor. On this front, there are certain specific features of the South African economy that could make it vulnerable to trade-based environmental measures. First, there is a high concentration of energy intensive industries, and many of these are active in export markets. These industries draw their energy from coal-fired power stations, and currently enjoy the lowest electricity prices in the world. Any action against coal-fired energy (for example, as part of a campaign against greenhouse emissions) could have a significant effect on these exports. Second, many of South Africa's exports are commodities or processed materials, and these have been the subject of particular environmental pressures. Third, from the mid-1980s until quite recently

there was a significant decline in fixed investment, especially in the manufacturing sector. The low levels of investment have led to a situation where in many industries there has been insufficient reinvestment, and, as a result, capital stock in industry tends to be old. Accordingly, environmental protection technologies that have been built in to newer capital equipment are often missing, and the level of investment that would be required to install these in some sectors is prohibitively high. Fourth, South Africa's environmental regulatory system is weak, and standards in many sectors are lower than they might be, were there better enforcement of regulation or greater incentives.

MARKET-BASED INTERNATIONAL ENVIRONMENTAL PRESSURES

These can be divided into two categories – the substantially market-based and the essentially regulatory. The first include consumer preferences, voluntary standards and labels and the adaptation of multinational companies. The second include national regulation of the environmental impact of imports and multilateral environmental agreements.

Direct Consumer Demands

Perhaps the most important market-based pressures that emerged from the interviews emanate from consumers themselves, especially in situations of regulatory weakness. As one South African exporter noted: "The truth is that if you break a law, you can always pay a fine and carry on especially since most of our fines are quite small. But if your customers are complaining there is nothing you can do. You can survive anything else but you can't survive without customers." These may be end consumers, including individuals, or intermediate consumers, which are often other companies. When consumers demand a certain environmental standard in the production of the goods they purchase, their preferences are often influenced by national and international campaigns about the environmental effects of particular products or substances. In this sense, information and organization play a key role in shaping direct consumer demands. Table 5.2 provides a list of sectors that have experienced direct consumer pressure, and the issues that concerned their customers.

Table 5.2 Direct consumer pressure, by sector and issue

Sector	*Issue*
Coal	Sulphur content
Chemicals	Potential hazards including during transportation
Citrus fruit	Chemical residue
Packaging	Recycled content
Pulp and paper	Chlorine bleaching
Steel	Overall environmental management
Timber	Source of wood and implications for bio diversity

Of these sectors, the pulp and paper industry is paradigmatic. International markets (and in particular EU markets) have increasingly demanded pulp that is bleached without the use of elemental chlorine, and more recently there have been calls for pulp that is totally chlorine-free. This has reflected a consumer concern (and indeed an international campaign) about the release of organochlorine effluent into inland and marine waterways as a result of the use of chlorine. This movement has had a major impact on international pulp and paper production, and the issue has been difficult for South African producers. Although a South African paper company patented a technique to remove elemental chlorine from the bleaching process some twenty years ago, elemental chlorine is still being used in some South African plants. As a result of international pressure, however, the country's two pulp producers have now moved to elemental chlorine-free (ECF) or totally chlorine-free (TCF) production in all of their plants. As one of the producers commented:

> We took a decision that by the end of 1996 all our plants will be ECF and this has been driven entirely by exports. In one case we wanted to delay the transition to ECF by two years but we were forced to move more quickly. Of course it's incredibly expensive. We have made huge investments in this already and there is still more to go as we still have to adapt our largest mill. There is no added value as such – in fact it creates additional operating expenses as well as capital costs. But the market demands it. It is a cost of staying in business.

Industry sources estimate that the South African industry alone has spent US$65 million on upgrading to ECF production over the last five years. This represents about 4% of the industry's 1996 turnover.

The chlorine issue is an interesting example of market-based pressure. According to the companies, there is no agreement among scientists internationally that chlorine is in fact harmful in the quantities in which it is released. However, the market has made a judgement that has been impossible for pulp producers to ignore. In this case, market-based pressures have mostly operated without the use of official labels or systems of accreditation. More recently, some countries have introduced regulations governing the use of chlorine in the pulping process. In the decisive stages, however, the pressures were market-based and led by consumer demand, illustrating that in some cases the demand of end and therefore intermediate consumers can create enough pressure to change production processes fundamentally. In the case of South African pulp producers, this pressure has led to a change of environmental practice without loss of market share. This is partly because the pulp companies are large and well established and have been able to make the necessary investments.

The pulp and paper sector also highlights an important limitation of international pressures. The international community is concerned with chlorine and has brought impressive pressure to bear on that issue. But the major impact of the pulp and paper industry on the local environment is not influenced by this international pressure. Indeed, there are many concerns about the industry's environmental impact, and especially its impact on local water quality. One example of this is a recent conflict between a coastal community and a large pulp mill that releases its effluent directly into the sea. Residents are concerned about the visual impact of this effluent, its odour as well as its chemical content. The Department of Water Affairs and Forestry was, at the time of writing, negotiating with the company to install a treatment plant for its effluent. Another company was involved in a conflict some years ago, when effluent was accidentally released into a nearby river, killing thousands of fish over a three-kilometre stretch. Indeed, from the South African point of view it may be much more important that local water quality issues (or air quality, or worker health and safety issues) are addressed rather than the "international" issue of organo-chlorines in marine waterways, which was targeted by the international community. Some argue that purely from this perspective, the money invested in reducing the use of chlorine may even have been better spent on other environmental projects. In this way, it is clear that there is often a fundamental divergence between the priorities of the international agenda and the most pertinent environmental issues from a local point of view.

In the coal industry, direct consumer pressure has been minimal in the past, but is now growing. As a result, South African coal exporters are having to pay more attention to issues such as sulphur content and trace elements of various substances. International concerns about sulphur content, however, stand to benefit South African exporters, since South African coal is relatively low in sulphur. As one export manager commented:

> There is no real pressure at this stage, but from time to time we are asked about our environmental policy. Some customers are beginning to look at our performance in more detail such as looking at trace elements in our product. There is general desire among companies internationally to demonstrate that their suppliers act responsibly in relation to the environment and this is affecting us. Most of the queries we receive are informal but we have recently received some formal enquiries too.

For most of the other sectors interviewed, there has been a combination of consumer and other pressures. Changes in the packaging industry for example, have been driven by a combination of regulation (such as German packaging regulations) and consumer pressure for lighter packaging with greater recycled content. Similarly, in the chemicals and citrus fruit industries, there is an overlap between regulatory requirements and the concerns of consumers, with market demands often exceeding what is required by regulation. In the sectors discussed above, most companies seem to be responding successfully to the new demands.

International pressures are, however, uneven and relatively unpredictable. This is borne out by the case of the steel sector. While there is an increasing consciousness about environmental issues internationally, in the steel industry there are no strong pressures to conform to higher environmental standards. Although managers in the industry seem to agree that environmental demands are likely to increase in the future, they are not compelled to make the substantial investments to upgrade their performance. This is very different from the pulp and paper sector, for which exports are only 9% of its market but in which pressures are real and present. In addition, the South African steel industry can be roughly divided between the newer plants where more environmental protection is built in, and the older plants where the capital equipment does not embody environmental protection. At least three of the older plants are way behind other international producers on the environmental front, and together

these plants represent more than half of the industry's output and almost half of their exports. Depending on how pressures develop in the future, this issue may begin to affect competitiveness.

Ironically, however, the current competitive position is at once driven and threatened by the age of the capital stock, in that on the one hand it contributes to low-cost structures and on the other it militates against environmental upgrading. One plant, for example, was built 51 years ago, and although it has been upgraded it still lacks sufficient environmental protections. "When this place was built," points out the environmental manager, "there was very little concern about pollution and many of our batteries are simply not up to today's standards." But the investments required to modernize these old plants are often huge. At one plant alone, an investment of some US$300 million is being considered – largely for environmental reasons, although it would also have benefits in terms of efficiency. "We tend to find that the senior management is reluctant to make investments that are purely environmental and have no economic benefits."

If this and similar investments are not made then some of the country's major plants may face real threats in the export market in the medium term, especially if and when environmental requirements increase. According to industry sources, investment in environmental protection is too low at current levels. At the older plants, environmental investment levels are about 5% of operating budget, compared with an international average of about 15%. As one interviewee observed:

> We will probably have to spend something like 30% of our budget for a few years in order to catch up. The way I see it, there is a race against time. A lot depends on supply and demand for steel in the international market. When there is oversupply, everyone will be trying to sell their steel and then environment pressures will pop out like sweetcake. If we can't improve then I think we will probably lose export markets.

It is clear, however, that in at least two of the three plants the requirement is for investment in general and not only environmental investment. Indeed, in the largest of the plants, the company is having to choose between a major reinvestment in the existing plant, or a new greenfield plant in another location. At this stage the companies are not yet experiencing strong market pressures to implement changes, but there is some pressure from local sources – for example, from communities living near one of the plants concerned about air emissions. There is also government pressure as a result of the chemical and heavy-metal content

in plant effluent, as well as concern about particulate and sulphur emissions. However, it is unlikely that local pressures alone will be sufficient to induce companies to make major investments.

Standards, Accreditation and Environmental Labels

Another form of market-based pressure is the growing trend towards the adoption of internationally recognized standards, labels or other forms of accreditation. These include various eco-labelling schemes and management standards such as the ISO 14000 series and the British Standard BS 7750. Nearly every company interviewed for this study was aware of the development of management standards, particularly the ISO 14000 series and above all ISO 14001, which covers environmental management systems (see Motta Veiga, Chapter 4 in this volume). The ISO 9000 series of quality standards already has a strong following in South Africa, and the ISO 14000 seems set to become well established.

So far, only ISO 14001 is operative, while the other standards in the series will follow later. A number of South African companies participated in the development of the 14000 series, and particularly the nature of the 14001 standard. ISO 14001 measures conformance to an environmental management system (EMS) rather than the actual environmental performance of an organization or its products. The standard requires an organization to: identify its environmental policy and objectives and then build an EMS to ensure that it is able to meet those objectives and which will enable the company to identify and measure its impact on the environment, identify and meet its legal environmental obligations, set objectives and targets for its environmental performance, create the necessary structures to implement its environmental programme (including assignment of responsibilities), train its employees and make them aware of their role in the environmental management system, document environmental information and policies and maintain proper records, create a procedure to deal with environmental emergencies, and monitor its performance and audit its management system (including a regular review by top management).

ISO 14001 could be a very powerful incentive for South African exporters in particular to install appropriate environmental management systems. Accreditation will almost certainly influence companies' ability to access northern markets, especially if governments begin to make accreditation a condition of government supply contracts. Most of the

companies interviewed indicated that they expect ISO 14000 to become a requirement in many export markets, especially Europe and North America. Companies are therefore keen to have the system in place. Many companies also indicated that they are in favour of the system because it involves a market-based instrument to which they feel they can adhere, rather than a command-and-control system. One manager pointed out that because companies have been involved in establishing the initiative, they have been able to create a system that is relatively flexible and takes account of constraints faced by a particular enterprise. There is also more buy-in, as a result of the participatory nature of the process. This demonstrates the power of a market-based incentive, and especially of a market-based incentive that has been created through a participatory process.

Another advantage is that ISO 14001 may be more successful than some other kinds of pressures in addressing local issues. This is especially because ISO 14001 requires companies to identify and meet their commitments under local legislation. This may bolster the regulatory work of government and help to ensure that companies are more aware of and responsive to their legal obligations. The ISO standards may provide more of an incentive to abide by environmental laws than the current system, which relies on under-resourced government departments wielding what are often very small sticks. However, although there are likely to be strong market pressures to become ISO 14000 accredited, the costs involved are still unknown in the South African context. Much depends on the nature of management systems already in place, and also on the skills of a company's employees and their ability to implement new requirements. It may be that for some organizations the cost of implementing and auditing the new system will be prohibitive, and this is especially true for small and medium size organizations. The cost factor, and its impact on small companies, will have to be monitored.

In contrast to the experience of ISO 14000, however, few of the companies interviewed were aware of eco-labels, which are increasingly prominent in the international debate. At present, they are fragmented between different countries and are concentrated in sectors such as paper, textiles, footwear and timber. They may, however, spread to other sectors (UNCTAD 1995a). In some sectors such as textiles, eco-labels have the potential to affect upstream suppliers such as cotton farmers, and cooperation is therefore imperative (see Motta Veiga, Chapter 4 in this volume). Textile companies interviewed for this study seemed unaware of the growing discussions on eco-labels in their industry internationally, and especially in Europe. They were not involved in these discussions, and had not developed positions on what sort of eco-labels they would be

willing to support. A lack of information and involvement in these discussions could be damaging at a later point. However, it may be that eco-labels will really affect only products in niche markets. Producers would then only be compelled to meet the conditions of the labels if they are aiming for that small segment or niche. For many South African producers, it may be that the costs outweigh the benefits. Much also depends on how the market responds to eco-labels in the future, and whether these gain support from governments.

One area where eco-labels of a type are making an impact is in the timber industry. Companies in this sector export wood chips as well as logs, mostly to the Japanese market. Both companies interviewed in this sector have received regular environmental enquiries from customers, including requests for verification that their wood is all sourced from plantation rather than old-growth forests. As in the pulp industry, this has been a source of advantage for South Africa, since all forests are managed plantations. Companies unable to provide assurances about the source of their timber are apparently being forced out of certain markets, particularly in Europe. One of the companies is exploring accreditation systems for their timber, which involve applying for the right to use a privately issued label that assures the customer that the product has been produced in an environmentally responsible manner. There are various labels of this kind, including those issued by the Forestry Stewardship Council, the World Wide Fund for Nature and Friends of the Earth. In order to win approval from these groupings (and attach their label to the product), certain environmental requirements must be met.

However, again there is a danger that international labels will reflect environmental issues that are not related to local conditions. In the South African case, this is seen particularly in the "international" focus on old-growth forests when the sector is largely plantation-based. Therefore efforts are being made to ensure that the labels would take local issues into account. Although plantations are preferable to old-growth forests from a deforestation point of view, they embody a different set of environmental problems, especially relating to water use and bio-diversity. Forestry policy makers in South Africa are currently working on a system that would create a set of indicators of sustainability for tree plantations. These indicators would assist planners to decide whether plantations should be allowed in a particular area. However they could also be used to ensure that local conditions are taken into account internationally. One of the companies in the sector has decided to take the ISO 14000 route rather than the certification route, and it remains to be seen which will be more powerful in the eyes of the market.

Global Company Policies

Another source of market-based environmental pressure is that exerted by the head offices of multinational companies on their subsidiaries internationally. This is well illustrated by the soaps and detergents sector in South Africa. Two companies interviewed in this sector are subsidiaries of major international firms. Both companies must abide by the environmental policies set by their mother companies, and the environmental performance of their products must match the same standards as a product manufactured in a company plant in another country. One example of this is in packaging. In one of the companies, the international head office set packaging policy guidelines which exceeded local regulation and practice in the South African market. The local subsidiary then had to ensure that its packaging suppliers were able to meet these standards and that its packaging for local and international markets was in line with the company's international policy.

Both companies pointed to a relative lack of environmental pressures in the local market or through local regulations: "Internationally, environment is a big issue but here there is very little pressure. For us its more of an issue coming from the global company policies than from the local situation [interview]." As a result of multinational policies, companies in this sector are probably achieving higher environmental standards than they would in the absence of pressures from their head offices. However, the policies of multinationals do not necessarily ensure that environmental standards are equivalent in all cases. One of the companies, for example, displayed a product from a sister company in Europe. Information written on the European pack provided a substantial amount of environmental data including information on the biodegradability of the product and on the recycled content of the package. Similar information is not available in South Africa, although the product itself is almost identical.

REGULATORY MEASURES

Domestic Regulations in Foreign Markets

When exporters seek to gain access to certain markets, they face national or domestic regulations regarding the environmental performance of their

products. For a number of the companies interviewed that have encountered these requirements, they have been very powerful incentives to upgrade environmental performance, particularly when the regulations are found in large markets (such as the EU or the US) or are common to a number of companies.

The best example of this kind of experience is the citrus fruit industry. South African citrus fruit is exported via a single channel, which acts as an export agency on behalf of citrus farmers. The agency, Outspan, sells to a wide rage of countries, including those in the European Union and North America. The major issue in the industry is control of chemicals that are used in growing and transporting the fruit. The regulation of chemicals has become a major issue in the industry internationally, and this has had an immediate impact on South Africa, because around 60% of the crop is exported. South African exports, particularly to Europe, must meet with strict specifications on chemical residues found on fruit entering the market. This has meant that South African farmers have had to alter their methods of protecting the fruit during both growing and distribution, particularly in terms of reducing chemical controls. As Outspan explains:

> There have been a number of factors encouraging a move away from certain chemicals and towards more natural controls such as introducing beneficial insects. We are now on the path towards integrated pest management which involves a combination of chemical and biological controls. The issue of chemical residues on fruit entering the export market has probably been the most important factor pushing us in this direction.

Indeed, Outspan has been key in conducting research and introducing new management techniques to the individual growers. Outspan assists farmers in introducing these techniques and in managing pesticides and other chemicals. This is especially important because farmers who abide by South African law may still be unable to export their product since local standards for chemical use are generally less strict than the maximum residue levels applicable in export markets. In response to this problem, Outspan issues publications for farmers that specify restrictions on chemical use for export markets. Since exports are a high percentage of local production, most farmers have introduced these new methods for all their produce and not only for their export fruit. This is an example, then, of domestic regulations in foreign markets driving improvements in local management practices.

One important aspect of the citrus case has been the institutional framework, which has allowed the diffusion of new practices and their adoption by a large number of producers. Most South African citrus fruit is produced by relatively small producers (farmers), and one would expect difficulty in spreading information and alternative technology to all these. In this case, however, the single-channel marketing institution facilitated the process by distributing information and working with farmers to ensure that they could meet the new requirements. Although the single-channel marketing organization was originally created for reasons of market control, and is now under fire, it has played a useful role with regard to environmental change. This demonstrates the importance of an appropriate institutional framework to manage changing environmental management – especially in sectors with large numbers of producers.

International Environmental Agreements

International environmental agreements (IEAs) are another source of regulatory pressure. So far, the chemical industry has been the most affected – mostly by the provisions of the Basel and Bamako Conventions (regulating the transport of hazardous wastes) and the Montreal Protocol (CFCs). The Framework Convention on Climate Change (regulating the emission of greenhouse gases) has the potential to affect a number of sectors, including electricity generation, aluminium, chemicals, coal, minerals processing, paper and steel. Much depends on the finalization of the negotiations on climate change. The Framework Convention sets out a programme to limit greenhouse gas (and in particular carbon) emissions internationally. At present, a small number of largely developed countries are responsible for the lion's share of carbon emissions. In 1990, for example, the USA alone contributed 23% of the global total. There is, however, no clear relationship between a country's level of development and its emissions. For example, in 1990 Japan and Germany each contributed 5% of global carbon emissions compared with the USA's 23%. China and Russia each contributed 11% and the UK contributed 3%. South Africa's emissions were about a third higher than those of Brazil, which is a much bigger country at a similar level of development. (Eskom Environmental Report, 1994)

South Africa is now a signatory to the Convention, and is classified as a developing country. As such, its immediate responsibilities do not involve setting targets for reductions in emissions, but rather it is committed to share information, track carbon sources and sinks, and develop a strategy to reduce emissions. Nevertheless, South Africa occupies a very particular

place in the climate change debate because of its high levels of emissions. In 1990, South Africa emitted 1.4% of global CO_2 emissions, and in 1995 was the third largest per capita producer of CO_2. The reason that South Africa's emissions are so high is largely to do with electricity supply, which is unusual for two reasons. Firstly, a very high proportion of energy is provided by coal-fired electricity as opposed to a greater mix of supply. Secondly, electricity is very cheap. At present, the electricity supplier, Eskom, supplies the world's cheapest electricity to high-load users, and has committed itself to lowering the real cost by a further 15% by the year 2000. In addition, Eskom currently has an over-supply of generating capacity. These factors make South Africa an attractive place in which to establish energy-intensive industries such as aluminium production and other forms of minerals processing. South Africa's large and fairly easily accessible coal reserves will ensure that cheap, coal-fired electricity is available for many years to come.

As a result, electricity generation is the largest contributor to South Africa's emission of CO_2. This makes the electricity supply sector as well as energy-intensive industries potentially vulnerable to international action on greenhouse gases. So far, there is no immediate pressure to substantially reduce greenhouse emissions, and neither Eskom nor companies in electricity-intensive industries such as coal feel strongly threatened. However, depending on the way in which international negotiations proceed, there is some prospect that IEAs on climate and energy may affect South Africa's energy-intensive exports.

COMBINATIONS OF MARKET AND REGULATORY PRESSURES

In a number of sectors, the international pressures do not come from a single source, but rather emanate from a variety of measures that together constitute a change in the business climate. This is true of the chemicals sector. The companies interviewed in this sector believe that chemical companies globally will assume more and more responsibility for their products from the start to the finish of the production process. South African companies cannot escape this trend, not least because of their reliance on export markets. The companies pointed to various environmental initiatives in the sector. One example is the trend towards more transparent environmental reporting, which informs consumers, shareholders and workers about the environmental impact of the industry. New forms of environmental reporting, similar to those now common

internationally, are now being considered in the South African industry. One of the companies has committed itself to producing an annual environmental report in addition to the usual annual report.

International regulations are also an issue for this industry. In particular, regulations governing the transportation of hazardous substances, and in some cases their content, have affected local practices. As with the fruit sector, international requirements tend to be stricter than local ones. Companies report that the regulations are strongest in Europe. In addition, the industry is affected by international conventions including the Basle and Bamako Conventions, the Convention on Climate Change (regulating the emission of greenhouse gases) and the Bio-diversity Convention. One of the companies is particularly concerned about the potential impact of the Climate Change Convention, since it produces and emits large quantities of carbon and other greenhouse gases. Indeed, the sector as a whole is a major contributor to such emissions. The chemicals industry would have to be integrally involved in any plan to reduce greenhouse emissions under the Climate Change Convention or any other plan. The international Greenpeace campaign to ban the use of persistent chemicals such as DDT, PCBs and chlorine has also left its mark. According to the companies, the dangers of DDT and PCBs have been widely recognized and their business would no longer be severely affected by an international ban or restriction on their use. Other persistent chemicals, like chlorine and PVC, however, remain much more integral to the business of the chemical industry as it is currently structured, and severe restriction would have "a major impact on our business".

However, the South African chemical industry, and the large companies in particular, are following international trends, and are in no immediate danger of losing export markets as a result of environmental measures. The industry is experiencing a combination of pressures (export customers, international environmental campaigns, international conventions, regulations), and these are driving the sector to be increasingly aware of environmental concerns. Together, these pressures amount to a significant shift in the business climate, and one to which they are compelled to respond. One of the companies has decided that all new plants in the group will be built to international environmental standards, partly to ensure that products are able to meet the requirements of the export markets. But older plants present more of a problem, because of the cost of retro-fitting. One of the companies is considering retro-fitting electrostatic precipitators and bag filters on some of its older plants in order to control sulphur and particulate emissions. This is, however,

"tremendously expensive. The question is whether it will become a cost of staying in business." Since there are a significant number of old plants in the industry, we can assume that investment requirement for environmental upgrading in this sector will be large.

It is by no means clear that in the short term (and in the absence of stronger local or international pressures) the companies will choose to make these investments. As one environmental manager in the industry put it:

> It is difficult to justify environmental projects because they don't generate any extra income. The accountants just see them as raising our fixed and operating costs without providing any real benefit to the company. We have been most successful in convincing senior management to make an investment when we have been able to recover a by-product which can then be sold. But otherwise it is difficult to make these investments.

THE IMPACT OF INTERNATIONAL ENVIRONMENTAL PRESSURES ON COMPANIES' ABILITY TO EXPORT AND ON THEIR ENVIRONMENTAL PERFORMANCE

The observations made above lead to four main conclusions regarding the experience of South African exporters. First, environmental pressures on South African exporters are growing, although in some sectors they are still relatively weak. The experience of the companies shows that while exporters are generally not facing environment-related trade restrictions, they are more and more affected by international environmental pressures of various kinds. Companies are increasingly having to show that their products are produced in an environmentally responsible way, and that their use will not cause environmental damage. Although this pressure is difficult to quantify, all the companies interviewed listed international pressures as an important, and sometimes key, influence on their environmental performance. It is clear that in sectors like pulp and paper, chemicals and fruit, the influence of international pressures has been decisive.

Second, the pressures take the form of market-based pressures (including direct consumer pressure and various forms of certification) as well as regulatory pressures (including international conventions and agreements). We have seen that these international pressures operate in

different ways. The pulp sector has been affected by direct consumer pressure, whereas the citrus fruit industry has had to respond to regulations. Electricity generators (and their major clients) and chemical companies are vulnerable to international agreements. In addition, a wide range of sectors are responding to the new ISO 14000 series, and this seems to be one of the most important mechanisms by which international concerns are influencing local industry. Market-based pressures appear, in the South African case at least, to be predominant.

Third, for the most part, South African companies are adapting to the new conditions, especially where international pressures are strong and have been developing over a fairly long period. However, successful adaptation depends critically on having sufficient information and sufficient investment capital. Some plants in the steel sector require large environmental investments, and textile companies seem to require more information.

Fourth, the effect of these pressures is generally to raise the environmental performance of exporters, although sometimes around issues that are not priorities for local conditions. International pressures relate largely to global issues such as ozone depletion, global warming, deforestation, chemical buildup in marine waterways and acid rain. Local environmental issues such as waste management, particulate emissions and local water quality are generally not addressed by international measures.

It should also be remembered that international measures are often subject to the ups and downs of the market and to changes in international sentiment. They should therefore not be seen in any way as a substitute for proper national environmental policies. At present, local environmental pressures in South Africa are relatively weak, although environmental lobby groups are certainly growing in strength. Environmental regulatory authorities are generally weak and under-resourced, and this makes it difficult for the government to monitor individual plants' compliance with environmental regulations. International pressures may therefore play an important complementary role in encouraging companies to raise their environmental performance.

Part II
General Issues

6 The International Negotiation of PPMs: Possible, Appropriate, Convenient?

Diana Tussie and Patricia Vásquez

A central aspect of environmental management is the way products are manufactured or processed and the way natural resources are extracted or harvested. These are now generically known as process and production methods (PPMs). Closer economic integration through trade and investment has made disagreements over the nature of PPMs more prominent than in the past. PPMs cut across a number of issues in international discussions on the environment, including eco-labelling systems, voluntary versus mandatory approaches, and the connection between commitments under the multilateral trade system and trade measures applied to solve environmental conflicts. The discussion over PPMs has raised the question of whether international regulations are likely to be useful for environmental management, and if so, what kind of regulations and which enforcement mechanisms might be appropriate.

Developing countries fear that discussions may serve to legitimize the use of trade sanctions under the new dispute settlement mechanism of the WTO. They have so far quite properly resisted calls for using trade as a kind of policing mechanism. They are right to resist the agenda as currently defined. The focus on trade policy to harmonize these differences is excessively narrow. Indeed, by the time goods get to the border, environmental damage has already taken place. Ultimately, policies are needed to adapt local production decisions. The question still remains as to whether the GATT principle of barring the extraterritorial setting of PPMs needs to be amended to reduce environmental degradation. Negotiating standards presents a formidable challenge, and this is spurred on only by the threat that, in the absence of multilateral rules, the vacuum may be filled by unilateral action.

This chapter reviews the discussion on PPMs, and tries to analyze where the pressure points over environmentally unsound PPMs lie. Most of these

pressure points can be traced to the absence of markets for environmental goods and services. Markets may not have developed either because of ambiguous or non-existent property rights, or because of the high costs of enforcing those rights. Air, the atmosphere, oceans and the resources they hold are not privately owned. Nor are most forests. Private individuals or firms are unlikely to take fully into account the impact on the rest of society of using these resources.

THE USE OF PPMS IN INTERNATIONAL AGREEMENTS: PRECEDENTS

As far back as 1906, the International Convention Respecting the Use of White Phosphorus in the Manufacture of Matches prohibited the manufacture and importation of matches made with white phosphorus because they posed hazards to workers. However, international regulations on PPMs have been more frequent when taken to avoid the depletion of animal and plant species. In this regard, for example, a Fur Seals Convention was signed in 1911. The 1989 Wellington Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific and the UN Resolution on Driftnet Fishing both prohibit large-scale high-seas driftnet fishing, but they do not have enforcement mechanisms. The mere threats of trade sanctions have helped stop driftnet fishing in the South Pacific. In contrast, the International Tropical Timber Organization has agreed to work on guidelines for sustainable forest management and to ban exports of tropical timber not produced using sustainable logging practices by the year 2005. An extended phase-in period has been established to allow countries to adjust their practices (see Sáez, Chapter 2 in this volume).

The 1980 Convention on the Conservation of Antarctic Marine Living Resources imposes limits on the harvest of krill and catch limits for crab. Enforcement relies on an international inspection scheme whereby inspectors may board vessels engaged in fishing or related activities in the area protected by the Convention. The inspectors report infractions and may also propose sanctions. The strength and intrusiveness of such an enforcement mechanism appears to be unique (Dovland, 1994). In the very special situation of the Antarctic, the inspection scheme has proved a comprehensive and effective enforcement mechanism, so that trade measures have not been considered. But enforcement has been facilitated by the lack of "free-riders", or non-party violators, because the location of the

resource makes it difficult for vessels to engage in pirate or unauthorised activities. The common interest of the parties to prevent depletion of species under a common-access regime (common-access goods are owned by no one country or individual) that they all need, and, at the same time, the absence of non-party issues, have facilitated enforcement.

When pollution problems are of a transboundary or global nature, countries have come together to agree on environmental objectives and on enforcement mechanisms to address the problem in a cooperative manner. The Basel Convention on the Transboundary Movement of Hazardous Wastes, which was signed in 1989 and came into force in 1992, offers a general framework for the discussion on PPMs. Among the relevant principles are:

- the source reduction principle, whereby waste generation should be minimized in quantity and pollution potential with the adoption of appropriate process methods;
- the integrated life-cycle principle, whereby products and inputs should be designed so as to minimize downstream environmental problems caused during their production, as well as their use, recovery and disposal;
- the precautionary principle, whereby preventive measures are adopted to avoid the release of potentially harmful substances;
- the standardization principle, which requires the provision of standards for the environmentally sound management of hazardous wastes at all stages, including in their processing, treatment, disposal and recovery.

The Convention also legitimizes the use of trade measures. Exports can be banned in the following cases: (1) to countries that are neither parties to the Convention nor to an agreement establishing equivalent environmental standards; (2) to a country that prohibits waste imports; (3) to countries without environmentally sound management and disposal facilities. In other words, trade is outlawed if the appropriate PPM is not in place at the point of destination. Similarly, the 1989 Montreal Protocol on Substances that Deplete the Ozone Layer incorporates trade restrictions. Parties to the Protocol are obliged to ban first imports of controlled substances from non-signatories and then exports to non-parties. In tandem with the obligation to ban trade of substances, signatories have also considered the feasibility of banning imports of products that use the controlled substances as inputs in their production.

The detection of products produced with ozone-depleting substances requires that either residues must be found or the manufacturing processes in the exporting countries must be certified through inspection. It is

technically feasible to detect even trace amounts of residues of controlled substances in products, but these techniques are onerous and they require the use of expensive and complex laboratory equipment not typically owned by customs or known to officials. Parties accepted (in Decision V/17 to the Protocol) that it is not feasible to apply the PPM-based trade measure for the time being, but that they want to "keep the threat of its use credible" (van Slooten, 1994).

The threat of trade measures served as a spur to industry. Du Pont and ICI are said to have invested about US$500 million each in alternatives to CFCs, mainly hydrofluorocarbons (HFCs). For users, the cost of adapting existing equipment to HFCs is high, but new equipment has the advantage that lower initial charges are needed when loading a system. In other words, the ban was used as an opportunity to look for alternatives and switch away from CFCs and other controlled substances. The import restriction of goods made with CFCs has not been necessary so far. But a precedent has been set, and recourse to a WTO-approved ban in the context of an international environmental agreement (IEA) may arise again in the future.

References to PPMs are also included in Agenda 21, adopted in 1992, which called for a reduction in the "quantity of waste discharge per unit of economic output". The call linked the finished product with the quantity of waste flow it generated. The Sulphur Protocol, signed in 1994, establishes "critical levels" of air depositions that each country's eco-system can tolerate without having negative effects. Those levels vary geographically and will result in different emissions reduction requirements for various countries. The Protocol also contains a list of specific emissions ceilings for individual countries to meet progressively by the years 2000, 2005 and 2010, as well as emissions reduction percentages. The protocol on control of emissions of volatile organic compounds also provides possibilities of differentiated reductions, but without including a specific obligation to use best available technologies or to enforce mandatory emission standards. Parties to the agreement are free to choose those actions they consider necessary to achieve the reductions.

There are no strict precedents for PPMs in regional agreements. Mutual recognition operates in practice. The Single European Act allows the European Council to adopt harmonised minimum standards by a qualified majority, but member states may impose higher standards, provided these are not a means of discrimination or a "disguised restriction on trade" (Pearson, 1992). Where standards were seen to be widely different, as in NAFTA, domestic legislation was reformed in

exchange for enlarged market access. The US, Mexico and Canada negotiated important areas of environmental cooperation motivated largely by the potential gains from trade. Mercosur and ASEAN have not made strides into environmental standards, but there is no clear evidence of a race to the bottom. The literature is almost unanimous in that differences in standards are far down the list of factors influencing international investment decisions.

Because international treaties generally lack enforcement mechanisms, individual nations are often tempted to take unilateral action, often in the form of a ban. In 1991, the European Community prohibited the use of leg-hold traps and the importation of some furs from countries that do not prohibit the use of these traps. In these cases, the motive for the PPM is a concern for animal welfare. In 1990, again, the US banned imports of tuna from five countries (Mexico, Venezuela, Panama, Ecuador and Vanuatu) because their fishing practices resulted in incidental killing of dolphins at a rate significantly higher than the average for the US fishing industry. The ban was grounded on the US Marine Mammal Protection Act of 1988. Mexico subsequently requested a GATT dispute panel to review the trade ban. The panel ruled in favour of Mexico, on the basis that the measure was applied to resources outside the country imposing the restriction. The question that has arisen after these measures is whether current trade agreements now have to bend to accommodate growing environmental concerns, whether the potential misuse of such a regulatory change can be accepted and to what extent market developments can be relied upon to reduce environmental stress.

EXTERNALITIES: A TAXONOMY

Consumption Externalities

These are caused when the environmental damage is transmitted by the product itself, or by substances physically incorporated into it. The harm may arise at the downstream stages of the product life-cycle (e.g., at the distribution or marketing stage), or when goods are consumed and subsequently disposed of. To protect consumer welfare or domestic environmental resources, product standards are used to reduce or eliminate these types of externalities. Such requirements have a discernible impact

on the characteristics of the product. They may be regulations on the physical or chemical properties of a product, on packaging, recycling and labelling or on waste disposal.

The consuming country may want to apply measures on imports to secure its environmental objectives. By way of illustration, the importing country may establish criteria on the use of pesticides in agriculture, or on the use of asbestos or ozone-depleting substances. Such requirements will need supporting border measures. In principle, product standards are verifiable by border inspection. When border measures are warranted to prevent imported products from undermining domestic regulations, they can be accommodated under existing trade rules. Generally speaking, a country can do anything to its imports that it does to its own products. It is legitimate to ban a product that causes environmental risks or damages in the importing country. The WTO establishes rules for trade restrictions on products in its Agreements on Technical Barriers to Trade (TBT). Technical regulations are defined as "product characteristics and their related production methods" (PPMs) for which compliance is mandatory. Countries are encouraged to follow international standards, except when such standards would be an ineffective or inappropriate means for the fulfilment of the objectives pursued. But harmonization is by no means a WTO objective. When a government chooses to follow or apply regulations that differ from international norms, these must follow the national treatment obligation; they must not discriminate between imports and domestically produced goods.

An important change resulting from the Uruguay Round is that technical regulations based on product requirements should be defined in terms of performance, rather than design or descriptive characteristics. A definition based on performance reduces the room for discretionary or discriminatory action. Government standardising bodies must accept and comply with a code of good practice concerning the preparation, adoption and application of compulsory standards. Countries are required to notify their standards or regulations ("transparency requirements"), if such standards are likely to have significant trade effects. Voluntary standards are also subject to the transparency/notification obligations, a requirement that is particularly important in the case of eco-labelling schemes.

Differential and more favourable treatment of developing countries is focused on giving developing countries more time to comply with the obligations of the Agreement, i.e., the notification of their domestic regulations. But it does not give them a differential schedule for meeting standards in export markets. Environmental protection is recognized as a fully legitimate basis for applying trade restrictive regulations. Article XX

of the GATT–WTO agreement allows for the adoption of trade restrictions for the protection of "human, animal or plant life or health" or "relating to the conservation of exhaustible natural resources". Also, the TBT agreement provides an "environmental window" by recognizing "that no country should be prevented from taking measures necessary", inter alia "for the protection of human, animal or plant life or health" or for the protection "of the environment". Each country has an absolute right to determine the levels of protection it considers appropriate, so long as they do not constitute (1) "a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail", or (2) "a disguised restriction on international trade".

While there is a commitment to follow international standards, i.e., a desire for some lax form of consensual harmonization, governments are also encouraged to afford mutual recognition: similar objectives can be met by a range of different standards and procedures. Rather than negotiating about detailed rules, governments have limited negotiations to agreement about basic objectives and have let individual governments determine how these objectives are best met. Governments, thus, remain the arbiters of whether mutual recognition will serve their domestic regulatory purposes adequately. The likely effect of this provision would be to require governments to justify a refusal of mutual recognition and thus to make arbitrary or anti-competitive refusals of mutual recognition more visible.

Governments pledge to assess risks on the basis of available scientific and technical information, but the evaluation process has not been free of ambiguities. Some disputes can be expected to arise in this context, but, all in all, they can be expected to be of manageable proportions within existing rules and dispute settlement procedures. For example, in early 1996 the WTO upheld a complaint by Venezuela against a rule issued by the US Environmental Protection Agency (EPA) in 1993, which set different standards for imported and domestic gasoline. After Venezuela first challenged the rule, the EPA sought to equalize standards, but the move was refused by Congress because it saw enforcement problems in relying on overseas refinery data.

Production Externalities

Production externalities arise when the process or production method leads to environmental damage in the producing country rather than in other countries. Standards in this case usually take the form of restrictions on the use of certain inputs or requirements that certain technologies be

adopted at the upstream stage of a product life-cycle; for example, at the time of cultivation, of raising and slaughtering animals, or of extracting natural resources or raw materials, or in the process of manufacturing. Standards for production in this case do not necessarily affect product characteristics and so, in principle, they are opaque to border inspections.

Nothing in international trade rules prevents governments from legislating on the process and production methods used by their own domestic firms, but insofar as an environmentally friendly product cannot be differentiated at the border from a similar product made in a more polluting way, process-related requirements remain outside the scope of the WTO. There are no trade rules to govern these, which contrasts with the case of product standards. The rationale behind this distinction is that product regulations protect consumption or use in the country applying it, but process regulations target sources of pollution overseas.

The long-established national treatment obligation under Article III of the GATT means that "like products" produced in different ways cannot be the object of different requirements. The range of domestic policy measures (taxes, regulations etc.) that can also be applied to such imported products is also limited. GATT dispute panels, to date, have concluded that national treatment obligations prohibit discrimination between "like products" on the basis of PPM-related requirements that do not lead to a change in the physical characteristics of a product. The definition of "like product", however, has never been clear-cut. It takes into account tariff classification as one among many criteria. Other criteria, like the nature of the product, its intended use, commercial value, price and substitutability, are used on a case-by-case basis (Vossenaar and Jha, 1995). But the processing or production of the product is not taken into account. However, this distinction between product and process standards is not always clear-cut in practice. In some cases, the selection of criteria and threshold levels for product standards may be so narrow that in practice only a particular production process may qualify (UNCTAD, 1993).

It should be noted that there are differences between the inclinations of the US and those of the European countries. The US has been reluctant to regulate the environmental attributes of a product directly, except in cases where there is a clear threat to human health. Instead, environmental initiatives have concentrated on the regulation of wastes, thus allowing for ample room for inter-state differences. Calls for harmonizing PPMs and extending national treatment of products to processes tend to come mainly from the US (Foy, 1992). The EU countries have opted for product

attributes, and are quickly developing extensive eco-labelling schemes, both at a regional and a national level. Some of these target the process, not just the product, either directly (as with chlorine-free requirements) or indirectly through the selection of such narrow criteria that only a given PPM applies. Strictly speaking, these are not legitimate, and have changed conditions of market access for a number of sectors and firms in developing countries.

Consumption and production externalities give rise to different types of trade implications. Since consumption externalities are transmitted by the traded product, environmental product standards can be treated as any other product standard. Product regulations may be burdensome, may increase transaction costs leading to market segmentation, or may have detrimental effects on developing countries' competitiveness, but they are legally acceptable. Table 6.1 provides a taxonomy of externalities, the sources of contention each gives rise to, and what international agreements and dispute settlement arrangements are in place to deal with the problem.

As a result of the Uruguay Round, the WTO has established a set of principles to regulate national conduct in setting industrial product standards in its Technical Barriers to Trade (TBT) agreement and agricultural product standards in its Sanitary and Phytosanitary (SPS) agreement. Disagreements over technical standards on products may be on the rise, because they can become a new type of non-tariff barrier; however, all in all, such disagreements are negotiable. The WTO is the obvious arena to confront these issues (see Table 6.1). However, in principle, it is not possible under these rules to make access to one's own market dependent on the domestic environment policies or practices of the exporting country.

Production externalities and process-based standards may be covered by international agreements when they relate to shared resources on the global commons. However, in Table 6.1 the bottom right-hand box is empty. As mentioned earlier, under current international trade rules, standards can only regulate product characteristics, and processes regulated by international agreements. Nonetheless, as Bethlehem and Motta Veiga show in their research, local PPMs are gradually sneaking in through the back door of eco-labelling schemes or as ISO standards for processes. In order to see whether this vacuum in international rules to address local process externalities needs to be filled, or if some kind of order needs to replace the law of the jungle, the rest of this section will look at which are the problems raised by process-related standards.

Table 6.1 A taxonomy of environmental standards and negotiating channels

The ISO standards also apply to products and processes, but have been left out because they incorporate market developments and are not mandatory. The ISO has no ancillary dispute resolution mechanism.

	Product-related standards Consumption Externality	Process-related standards Production Externality	
Geographical extension of externality	National	Regional/global(damage to others)	Intrinsically local (damage to oneself)
Sources of contention	Potential discriminatory application or implication of standards	Free-riding	End-of-pipe waste treatment and sustainable rate of natural resource exploitation
Locus of dispute resolutions	WTO (covered by TBT and SPS agreements)	IEA (could be taken to WTO in case one of the parties is not a member of IEA)	

Source: Elaborated from OECD (1994d).

GEOGRAPHICAL EXTENSION OF DAMAGES: LOCAL VERSUS TRANSNATIONAL

Production externalities raise two types of problems. First, what incentives are necessary to achieve the optimal combination of pollution and production. Much of the environment (the air, the sea, the atmosphere) is either a "public good" or is regarded as a common-property resource (such as uninhabited forests). The main feature of a public good is that it is indivisible: supply is joint. So long as it is supplied to one individual, it will be supplied to others as well. Goods under common-property or open-access regimes are owned by no one individual or country and can be accessed by all. There are no clearly defined property rights, only assumptions or traditions about how and to what extent other people will use the resource. In these, there is a tendency to over-use the free resources. The result is a higher than optimal level of production.

A second category of problems is related to the use of the environment as a receptacle of waste, and thus deciding which types of pollution are irremediable or intolerable. In this latter category are problems that have to do with common-property resources of the world as a whole, where remedial action is either impossible or else not possible in time to avoid disaster. Examples of this category are production processes that pollute the high seas and the atmosphere.

These are points at which public policies must operate. When free riding or over-use is possible, there is a case for the government to use its coercive power of taxation or licensing rights or prohibition of activities to improve the situation. The socially optimal policy does not generally consist in solely taxing polluters, let alone in prohibiting any form of pollution as specified by the currently available technology. The optimal policy will involve determining the socially optimal combination of production and pollution and implementing a system of taxes on the producers (such as the PPP) and subsidies to the affected parties.

In short, market failures occur in processes that are dependent on the use of open-access goods (such as forests or fisheries), or public goods, be they local (such as air and water) or global (such as the ozone layer or greenhouse gas emissions). In the middle, between a consumption and a production externality, lies the use of various pollutants (synthetic gases such as CFCs, or chemicals such as DDT, chlorine, and heavy metals such as cadmium and mercury) that accumulate in the biosystem with extremely hazardous effects on human health. Since the risks of using such materials will not be reflected in their price, the market cannot be expected to produce a socially optimal outcome.

For analytical purposes, production externalities can be categorised according to the geographical extent of environmental degradation. On one hand, a PPM may lead to environmental degradation that is limited to the country using the PPM. On the other hand, a PPM may cause environmental degradation beyond national boundaries to global assets, such as the atmosphere, or to shared resources in a physically adjacent country or geographical region (OECD, 1994d).

Where externalities have a spillover effect beyond national borders, restrictions or banning of a particular PPM may be necessary. Where global externalities are involved, International Environmental Agreements (IEAs) have set emission standards, i.e., the Volatile Organic Compounds Protocol; the Sulphur Protocol; the Earth Summit pledge to cut greenhouse gases. In the context of an IEA, competence for setting and monitoring standards can be built up. Trade measures have been included to deter violations, for example, in the Montreal Protocol which tried to enforce a mix of product and process-related regulations: a ban on ozone-depleting substances (ODSs), a ban on trade in products containing ODSs with non-parties and a ban on imports produced with controlled substances. The former two are typical product regulations, while the latter is a process-related requirement.

A different case arises when environmental degradation is restricted to the producing country. So far, the responsibility for setting process requirements to address these damages, such as emission or effluent standards whose effects are strictly local, lies in the hands of the country where production takes place. However, the fact that externalities are restricted to the local environment does not preclude the wish to see PPM standards implemented extraterritorially when there is an overriding value on the preservation of the global environment. Since all ecosystems are interdependent, national boundaries are fictitious dividing lines. A dispute may even arise over the limits to the concept of global commons, countries being seen merely as the custodians of global resources for the benefit of humanity. Such disagreement over processes, however, has no de jure accommodation within existing channels; this is reflected by the empty box in Table 6.1.

INCENTIVES TO UPGRADE: NATURAL RESOURCES VERSUS MANUFACTURING

How harmful a given sector is to the environment naturally plays a part in determining the cost of adaptation, which in turn affects the propensity of firms to take up internalization of their own free will. While some sectors

have serious impacts on the environment, others have smaller or more controllable effects. Commodities head the first group. On one hand, they are produced directly from natural resources and have a large and a very immediate impact on the ecosystem. The extraction and harvesting of natural resources is not an activity in which full cost internalization takes place. On the other hand, commodities are very price-sensitive. They are heavily dependent on price as a factor of competitiveness. Here, even small differences in internalization are likely to represent a larger proportion of production costs (Markandya, 1994a). Internalization will not proceed unilaterally, because upgrading has an effect on competitiveness, and because free-riding is possible.

In contrast, in industry the costs of upgrading PPMs seems to have more diluted, though not negligible, effects on international competitiveness (Low and Yeats, 1992; Markandya, 1994a). The evidence that "dirty" industries are not migrating to countries with lower standards shows the marginal importance of environmental standards in locational decisions. The point is that the market will not necessarily operate against internalization, or at least not in all phases of production. If cost increases can be absorbed by firms themselves, or passed on to consumers, then competitiveness may not be harmed. In such circumstances, cost internalization can be undertaken without fear of losing market shares. The nature of competition already determines a priori incentives to internalize. Sectors with high profit margins may have more capacity to absorb cost increases than sectors that operate with tighter margins. Homogenous bulk items, which typically compete on price, lead to lower profit margins. These products will offer fewer incentives to upgrade.

Even though industry may need the spur of binding targets and legislation to make improvements, dissemination of industrial PPM standards in the market forces plays an important role. Generally, PPMs are supply-pushed in developed countries where new environmental regulations, accompany the upgrading possibilities opened up by technological developments-specifically, the market availability of economically sound technologies. International trade in itself provides incentives to industry. The case studies in this volume show that the adoption of environmentally sound technologies (and thus adequate PPMs) is spurred by trade opening where firms are forced to become internationally competitive. The same is true at the sector and the firm levels: outward-oriented sectors tend to have a less pollution-intensive technological mix than inward-oriented sectors or firms. However, our case studies show also that trade-induced upgrading has limitations. Large export firms incorporate higher standards, while smaller

firms producing for the local market have no carrots to induce them to upgrade when local standards or enforcement remain lax. In this scenario, dual markets are reinforced.

Large, outward-looking companies in developing countries tend to follow, with a lag, standards set in advanced countries, notwithstanding gaps in environmental preferences, values and assimilation capacities. Trade disseminates standards in two ways: there is supply-push in the form of technological linkages and demand-pull coming from market demand. Such market-driven process standards do not need government intervention. They will be adopted as technological developments become marketable, or as foreign market pressures induce firms to internalise a larger share of social costs.

Firms are sometimes ready to absorb certain cost increases. When processes are properly designed, there are savings that may offset at least part of the costs of adjustment. Moreover, some environmental upgrading leads to private gains. A school of thought maintains that high levels of environmental protection may in fact enhance competitiveness, because it leads to innovation and efficiency (Porter, 1990). Firms in this category will pay attention to the quality of their products, to the technology used and the environmental concerns of customers; they can thus reap so-called first-mover premiums. At that level of competition, Porter concludes, the conflict between environmental regulation and competitiveness as a false dichotomy. Pollution is considered to be a form of waste and inefficiency, and when firms are made aware then innovation can reduce or completely offset the costs of compliance with regulations.

Porter's reasoning applies mainly to market leaders that can be attuned to standards, and even contribute to set them and spread them internationally. In essence, environmental protection becomes the basis of strategic behaviour. However, most firms in developing countries do not operate in such markets. Most of the time they are standard takers rather than standard setters. Yet we need to consider that even for standard takers some elements of cost internalization may help to increase resource productivity. Just how possible this type of win-win situation is depends on the point at which action is required for process upgrading.

In fact, fuller cost internalization in industrial processes means three possible kinds of adaptation:

1. introduction of new production methods;
2. improvement of existing processes, i.e., efficient utilization and reutilization of solid wastes and inputs;
3. treatment of effluents, emissions, and solid and semi-solid wastes.

In the first two steps, firms must switch to "clean technology", to processes that avoid generating waste throughout, from beginning to end of the production process. The adoption of "clean technology" has private benefits. Technological upgrading to shift from pollution control to pollution prevention first involves higher capital costs, but subsequently has the potential to bring savings in running costs. Short-run comparative disadvantage is compensated by the higher standards themselves. In contrast, when waste reaches the third stage and requires filters and effluent treatment facilities, firms do not obtain private benefits from cleaning, as this third stage is known. Cleaning involves the installing of end-of-pipe equipment on existing machinery to remove pollutants. This raises non-recoverable investment and running costs (Chudnovsky and Chidiak, 1995; Vossenaar and Jha, 1995).

In other words, when industries are able to gain from the technological or financial advantages of recycling inputs or of using subproducts as energy inputs, they have inducements to optimize processes. There is, in such industries, an endogenous incentive for environmental upgrading. In contrast, end-of-pipe adaptation is not favoured with such positive incentives. Private agents will not adopt cleaning processes voluntarily, because they are not cost-effective. Driving forces in these market segments are public policies and public pressure that coax firms into internalizing. Here is the point at which factors exogenous to the industry come into play.

The implication to be drawn from these distinctions is that there are some incentives to protect the environment and that these vary from sector to sector, according to the way in which the production process is composed. If processes in a given industry are composed more susceptible to steps (1) and (2) than to step (3) then environmental upgrading becomes an opportunity to become more cost-effective. The steel industry, for example, shows the closest relationship between efficiency gains and pollution control, because most of the pollutants it generates can be dealt with by recycling energy, a key input. The scarcest incentives, on the other hand, will be found in industries most in neeed of end-of-pipe treatment, such as the leather industry. When public policies fail to consider these externalities the use of a public good (air, water, soil) for waste disposal, then environmental costs will differ, and this will generate disagreements. In the absence of policy interventions, producers may not consider these external costs. The positive market incentives here are missing; private agents require more coaxing, regulation and pressure to internalize.

Now to pull our arguments together. Some PPMs can be left to flow from market outcomes. However, free-riding opportunities or high internalization costs deter firms from switching to sounder processes of their own free will in two sets of circumstances:

1. Natural resource-based products. Even free traders will acknowledge that, in the absence of adequate policing, fast export growth can lead to over-exploitation of open access resources (e.g., deforestation, fisheries and agriculture; see Gutman and Sáez, Chapters 2 and 3 in this volume).
2. Industrial sectors delivering greatest effluents and emissions. The more end-of-pipe treatment is required by a specific industry or industrial process, the higher are the costs of internalization. In these processes, when previously external costs are internalized, the cost position of firms is bound to deteriorate, particularly if firms are price-takers in international markets, as is the case with most firms in developing countries, which are small by world standards.

These are issue areas in which the trade orientation of the country or the sector in question does not entail a switch to environmentally sound PPMs, or where the market will not arrive at the socially correct allocation of resources. This is not an argument against trade liberalization, but one for carefully evaluating the environmental effects of fast export growth to make the necessary policy adjustments in related areas.

In order to do that, it becomes imperative to first draw a clear picture of the impact that increased trade has on the environment. We have said that increased market access may lead to natural resource overuse when policies are not previously in place to prevent free-riding. Without clear-cut regulations, incentives to over-exploit are likely to occur. This is especially true with natural-resource-based production, such as in agriculture, fisheries and forestry. In the case of fisheries, the evidence speaks for itself. Studies have demonstrated that all major ocean fishing areas are at present being fished at or beyond capacity, and that global per capita seafood supply has declined by 9 per cent within the past five years (FAO, various years). The absence of agreed international standards for fisheries will continue to raise disputes at the WTO, such as the longstanding one between the US and other countries on tuna fishing and dolphin protection, and a more novel one regarding the use of turtle protection devices for shrimp fisheries.

This dichotomy between the environmental effects of natural resource-based PPMs versus industrial PPMs is likely to continue in the near future. Incentives to upgrade are larger and easier in manufacturing. These come in the form of new technology, or are demanded by the market. In the first

case, technological upgrading means more efficient production methods, and thus cost reduction. In the second case, export-oriented firms are prone to incorporating foreign production standards required for market access. In these cases, an increase in trade does not necessarily lead to unsustainable resource use – on the contrary, it comes about with incentives for upgrading production techniques.

The TBT agreement concluded during the Uruguay Round goes a step beyond Article XX in admitting the use of eco-labels for certifying processes and methods of production, as well as products. This is a window for countries to introduce process standards in trade relations. Eco-labelling is meant to raise consumer awareness and it leads to increased product differentiation. In some ways, eco-labelling is taking on extraterritorial PPM standards. Such schemes are intended to provide information to consumers and to make them aware on the consequences (even long-range) of using a specific product. They have proliferated quite rapidly in recent years, particularly in Europe.

As developing countries tend to play at best a marginal role in the process of setting standards, these tend to be biased towards criteria that are relevant to the standard-setting countries, regardless of the country where the good is produced. In passively adopting international standards, obvious gaps in environmental preferences and assimilation capacities are overlooked. PPMs preferred by the importing country may be of no use to environmental management in the producing country, and when it all comes together the given objective may be missed. For example, UNCTAD (1993) has reported cases of eco-labelling programmes based on PPMs or the use of raw materials that prevail in the importing country leading to opposite effects in producing countries. Among them is the case of Colombian exports, which to comply with recycling regulations have had to replace environmentally friendly packaging materials, such as jute, with recyclable imported plastic.

In the process of developing eco-labelling schemes, domestic producers have a greater say than foreign producers, and in certain cases they can hijack the standard setting operation together with the legitimate concerns of environmental groups. Standards are, after all, barriers to entry. Incumbent firms may increase their market power by raising the costs of compliance for foreign producers, possibly even inducing exit and/or inhibiting new entrants. Preferences and priorities may differ from importing country to importing country; regulations may even be incompatible with each other. Their very proliferation is an entry barrier that has trade consequences, especially for developing countries, notably in forest products, pulp and paper and increasingly in textiles, clothing and footwear.

Eco-labelling is not the only process standard-setting mechanism. The ISO is yet another way in which process standards are slowly merging into the market. The ISO is working on standards that would set broad criteria for eco-labelling. While this course may help mitigate some environmental externalities, it may easily create other distortions. While ISO standards are voluntary, they are often made mandatory by member countries, or in practice become mandatory, by becoming commercial standards. Industry will press for cartel-like solutions, which may over- or under-shoot the socially optimal level of protection (Hoekman and Leidy, 1992). Moreover, producer agreements worked out at the ISO are not readily accessible to developing countries. Except for the biggest among developing countries such as Brazil or Korea, few have a significant role in the adoption of standards at the ISO. For most developing countries, participation in the ISO standard-setting process is limited to discussing those standards agreed upon by larger countries and passed on to them. Although the ISO is a voluntary scheme, the road to market access is greatly influenced by standards emanating from it. The process, when not open, transparent and participatory, helps to produce a collusive outcome. Resulting standards that are imposed or proposed are endogenous, the precise wording depending upon the preferences and strengths of the environmental lobby and the number and the relative size of the firms in the industry, their production technologies, their possibilities of capturing environmental rents, etc.

CONCLUSIONS

Less than a decade ago, the consensus against the "greening" potential of the market was widespread. It was widely held that market forces clearly contributed to degradation. The above discussion shows that at certain points open markets have been able to provide incentives for environmental upgrading. As trade liberalization expands, so do the voluntary environmental industrial standards set by advanced countries. Trade is so far acting as a propagator of standards in two ways: through technology transfer and by an increase in market demands for environmentally friendly standards. Such market-pushed process standards do not need government intervention to be implemented. Industrial firms adopt them either through technological developments or as foreign market pressures induce internalization of social costs.

So, regardless of the lack of international rules for the adoption of process standards, in practice these are already being adopted by export-oriented firms in developing countries. In contrast, smaller firms producing mainly for the domestic market, and unconcerned by access abroad, lag behind. The potential of voluntary standards to enhance polarisation and lead to dual markets is high.

There are no truly unambiguous criteria for comparing the effect of physical emissions in different environments that would allow uniformity of local standards. This is basically possible only when true global pollution is concerned, as with CFCs or CO_2, where the site of the production of pollutants is unimportant (Steininger, 1994) to the global effect. For all other cases, there are no physical criteria to measure local environmental conditions and to relate them unambiguously to the capacity to absorb emissions. Moreover, a country may have very strict standards for a given pollutant and less stringent standards for others. It would be difficult to agree on which combination would be the most appropriate and who should decide. The absorptive capacity of the local environment is a resource in the production process similar to the weather or the fertility of the soil, and prima facie it should be treated as such.

For all these reasons, any agreement on local PPMs will be either very difficult to achieve or else dominated by only a few members. The problems and abuses potentially involved would far outweigh any benefits, whether to trade or to the environment. Even regardless of competitiveness considerations, the best environmental policy is to respond at the level where the environmental effects can be observed and tackled. As common sense indicates, people's responses are stronger the more immediate their experience.

To avoid such barriers to entry, and to ensure that the PPMs enforced address the right local problem, rather than merely the problem that attracts consumers' attention, eco-labelling schemes should be multilaterally agreed, involving both producers and consumers. They can be better targeted if they are designed in a cooperative manner, taking into account the criteria and thresholds applicable to the conditions where the production process takes place in consultation with the countries concerned.

In sum, to deal with intrinsically local problems, both for trade reasons and for environmental reasons, efficiency and efficacy require that each country adopt standards that reflect its environmental conditions. Taken at large, countries' behaviour in this case creates no environmental problem for other countries, so there is no real reason why trade policy should concern itself with local production methods. Basing trade regulations on

arbitrary judgements as to which endowments do or do not constitute legitimate advantages would lead to gradual breakdown of international cooperation. Disputes in this area would more or less affect the whole spectrum of traded goods. Such moves should be strongly resisted. Since there is no external benchmark of any kind to distinguish these measures from protectionist capture, there is no valid justification for exemption from WTO obligations.

However, the relationship between the multiplication of eco-labelling schemes, the ISO and the WTO is in itself an area that needs to be worked out. The WTO will have to take up the issue to reduce the risk of nationally defined standards becoming an entry barrier. The ISO process, being voluntary, has no ancillary dispute resolution mechanism, and so disputes over standards can be expected to flare up at the WTO. Arguments in favour of extending the national treatment obligation from products to processes will not subside. This is true in so far as the limits of the sustainable use of natural resources and of the global commons remain controversial. Fisheries are a case in point, with continuing disputes expected to emerge at the WTO, especially on the use of special devices to protect dolphins or turtles when fishing tuna or shrimp respectively. Agreed international standards on PPMs in fisheries might prevent these disputes from rising. But to insist that a given process must meet a national treatment test "is to establish extraterritoriality as a fundamental rule of international trade. That is a point of departure that only large countries can afford to take and, makes increasingly little sense even for them" (Hart, 1994: 24). In fact, Principle 11 of the Rio Declaration justifies differentiation of requirements across countries.

7 Lessons from Trade Theory for Environmental Economics

Partha Sen

Environmental degradation is a byproduct of production and/or consumption. Since the amount traded internationally for any good is the difference between a country's production and consumption of that good, the state of the environment and trade are intimately related. Even where goods are not traded, there could be concerns about cross-border pollution or the destruction of the "global commons". Trade liberalization could increase pollution by two principal mechanisms. First, countries may lower environmental standards in order to attract mobile and potentially polluting factors of production (e.g., capital), thereby "exporting" unemployment. Second, concentration on a country's comparative advantage, particularly in the presence of a balance of payments crisis and/or incomplete markets, could result in an overuse of natural resource endowments.

For about two centuries, the two dominant paradigms in international trade have been those of Ricardo and Heckscher, Ohlin and Samuelson. According to Ricardo, trade was determined by differences in technology. The Heckscher–Ohlin–Samuelson (HOS) model, abstracting from differences in technology, put forward factor supplies (endowments) as the crucial explanation of trade. Other explanations have been advanced, but these two continue to be the workhorses of trade theory. In the practical conduct of trade policy, at least since the World War II, the GATT rules have sought to remove trade barriers between countries. The GATT, as is well known, allows for trade intervention under certain circumstances.

The emergence of environmental concerns poses interesting dilemmas for both trade theory and practice. Is the environment a factor of production, which should be considered in the light of the Ricardian model? For the HOS model, are different countries with different concerns about the environment considered to be differently endowed with environmental factors of production? What form should a reform of GATT/WTO take to make it responsive to environmental concerns? Should Article XX be amended, or just its standards agreement? Or should

environmental subsidies be exempt from countervailing duties? Rather than presenting new results, this chapter surveys the existing field, and thereby attempts to shed some light on the principal areas of debate.

The main conclusion of this chapter is that some results of the competitive models are retrievable, if the models are interpreted broadly. But there are areas where these theoretical models run into serious trouble. If we extend our horizon to include strategic trade theory models, however, then we achieve a better understanding of the role of environmental considerations in the design of trade policy. These models suggest that countries could make use of the environment in a bid to lower costs and gain competitiveness in the foreseeable future. Trade policy is not the appropriate weapon in most cases to address environmental issues, because of problems of information and appropriate standards. However, in those situations where there is broad agreement among nations, trade sanctions could be used to punish deviant behaviour.

The rest of the chapter is organized as follows: in the next section, I look at some simple examples of environmental externalities and how they necessitate changes in our view of how comparative advantage determines trade. I then look at models that apply to interaction between North and South. Following this, I look at the strategic use of the environment in relations between countries. Transboundary pollution is discussed next, and the final section contains some concluding comments.

SOME SIMPLE ANALYTICS

Trade offers the residents of a country an opportunity to buy goods at prices different from those that would prevail in the absence of trading opportunities. This is in addition to the ability to buy goods that are not produced at home because prices do not justify production. The traditional argument for trade, then, is that it cannot reduce welfare. The country in question now has all the options that it had before it opened up to trade, and more.

Neo-classical trade theory then goes on to show that for a small, open economy free trade is the optimal policy. It is, however, important to remember that the above is true only if perfect competition prevails everywhere and there are no distortions. It is easy to see that if there are distortions, free trade may not be optimal even for a small open economy. The environmental problem arises primarily because costs are not

internalised and there is a divergence between private and social costs. In principle, this divergence could be eliminated by the imposition of appropriate taxes and/or subsidies.

The specialization–trade–environment nexus presents the following dilemmas. First, suppose that there are no taxes on pollution, and that after opening up to trade the polluting sectors expand (see Gutman in this volume for some interesting examples). It is conceivable that welfare would fall even if conventionally measured incomes increase, with the result that free trade actually "immiserizes" the small, open economy. Second, standard models of international trade that account for the presence of distortions do not provide a good guide to how policy should be conducted, since they assume that the economy is in a situation approaching an optimum. The literature on piecemeal tax reform, however, looks at small changes from any initial equilibrium rather than in the neighbourhood of the optimum, and also suggests that trade reform and environmental reform must go together (see Copeland and Taylor, 1994).

Third, Chichilinsky (1994) presents an interesting model where trade between two countries, identical in every respect except for property rights on environmental use, leads the economy, with ill-defined property rights to export the environmentally intensive good leading to what she calls "apparent gains from trade". It may not be comparative advantage, but rather an unregulated common property resource, that causes a country to "export environmentally intensive agricultural products or products produced from dirty industries even if its forest land, clean air and machinery were as expensive as they are in the industrial countries and even if it had the same technology and preferences" (Chichilinsky, 1994: 859).

The theory of policy that has important implications for trade policy in an economy with polluting economic agents holds that a distortion must be tackled at its source. Hence, a tariff used for other considerations (for example, to correct "distortions" in production) results in the economy achieving a lower level of welfare than if other policy instruments had been used (such as in the case of a production distortion by a tax or subsidy on production). Thus, in general, trade instruments are sub-optimal for correcting environmental distortions.

How does concern for the environment change the traditional view of trade? For a small economy, there are no terms of trade benefits to be gained from changing its environmental use or tax. It therefore should impose a Pigovian tax on pollution to eliminate the difference between social and private costs. The result accords with intuition. A low tax on pollution does not offer us any trading benefits, but we have to bear the

costs. The best policy is to eliminate the implicit subsidy to pollution. In the example above, if the small economy imposes a Pigovian tax then free trade cannot "immiserize" it. Pollution has the "right" price in that it reflects the social damage.

For the large economy, the situation is much more complex but also more interesting. In the absence of environmental considerations, and assuming no retaliation, a large economy can improve its welfare by imposing an optimal tariff. In other words, it "fixes" its terms of trade to secure the maximum benefit for itself. This lowers world welfare relative to the level that would have prevailed in its absence.

Once the environmental factor is introduced, we have an optimal tariff for each level of pollution tax, and an optimal pollution tax for each tariff level. Consider a situation where the tariff rate is bound at a certain level for a certain commodity, possibly owing to an international agreement. Now a pollution tax on production of this good will reduce its production at home, and hence change the world price. If the country imports this good, its tariff revenue collection would also be affected. The optimal pollution tax would have to take into account the (usual) difference between the private and the social cost of pollution, and, in addition, the terms of trade and the tariff revenue effects. As long as the country has available these instruments, it can attain a "first-best" situation for itself. Thus while a small economy that takes world prices as given cannot use the environment to improve its welfare above the free trade level, a large economy certainly can.

I now turn to an issue that makes the environmental problem in the open economy very different from that a closed economy. In a closed economy, the issue of incidence of taxation is not usually important. If the level of activity in a sector is to be curtailed then this can be achieved by imposing a tax on production or consumption. These taxes have different income effects, but in a closed economy the tax-collecting agency (i.e., the government) is assumed to be unique. In an open economy things are not as straightforward.

Consider a commodity whose production pollutes the environment and this pollution is not of the transboundary variety. Suppose the commodity in question is produced at constant cost entirely for export. Without pollution consciousness, the price of this good is low because the externality is not "internalized" and more is produced and consumed than is "desirable". A tax could be levied to reflect the social cost of production by either the producer country or the importing country. In either case,

output and consumption would fall. So, from the production and consumption point of view in either case output would fall to the same level and the price would rise. This bears out the Coase conjecture that a variety of property rights can support an efficient equilibrium (Snape, 1992; Lloyd, 1992; Anderson, 1992b). But then the question of who keeps the revenue becomes important. And here the producer could tax it beyond the socially optimal level (from a world point of view) in order to secure a gain in terms of trade by pretending to be more "green" than is actually the case. If pollution occurs not in production, but in consumption then again the same output–price combination could be secured by either country imposing a tax. The importing country bears the pollution cost, so it might seem fair that it keeps the revenue. However, the exporter may then invoke its monopoly power as a supplier to corner the tax revenue.

In the two examples considered above, there is no presumption regarding who pays – the polluter or the other party. The polluter pays principle (PPP) is an article of faith for environmentalists, and has been reiterated in the Rio Declaration, Principle 16. The PPP gives no incentive for the pollutee to take evasive action. Quite a few economic models make the case that the polluter should pay, but not that the pollutee should receive, because this might prevent the latter from taking evasive action that otherwise may have been chosen.

Consider a third example – the international equivalent of passive smoking. The tobacco company (seller) sells to the cigarette smoker (buyer), but smoking adversely affects a passive smoker (a neighbouring country of the "buyer"). The neighbouring country could make payment to the seller (pollutee pays), but the buyer could try to compensate its neighbour (one of the polluters pays). If the pollutee pays then there is a moral hazard problem (see Snape, 1992, for a discussion). In any case, with a transboundary pollution problem the case for free trade no longer exists (Bhagwati and Srinivasan, 1995). In the analysis so far, we have assumed that the costs associated with pollution are real costs (which they are) and measurable (which they are not). Go back to the production externality example and imagine that instead of the actual pollution cost per unit of production x, the producer claims it is $1.5x$. The final outcome could depend on bilateral negotiations, but not on the verifiability of the actual cost (although sometimes this may be possible). Such disputes arise within national boundaries, but the national government imposes its will. In the international domain there is no equivalent authority. Revelation of preferences and costs becomes a major issue in the absence of such central authority.

It is also interesting that the Coase conjecture runs into problems in environmental issues in a closed economy because a large number of agents implies high transaction costs, but in the open economy with relatively few governments it regains its usefulness. (See Dasgupta, 1996, for a very good discussion on transaction costs and institutions.) The problem, however, does not disappear, because in the international economy there are fewer agents (governments), but no supranational agency to ensure that contracts are binding.

Bear in mind that the environmental degradation is not just a result of market failure. It could also be associated with what is called "government failure". The policies pursued by a government could exacerbate market failure. Examples abound. Consider the clearing of tropical forests in Brazil, largely due to the government not taxing agriculture and an undeveloped system of property rights so that trees have to be felled as proof of land occupancy. In India there is overuse of fertilizer, electricity and water in agriculture because the prices of these are artificially kept low. Agriculture subsidies in the US and the EC constitute another example. In short, study of the political economy of special interest groups and government failure is as pertinent to the trade–environment debate as are conventional issues of negative externalities and market failure.

NORTH–SOUTH MODELS

I now turn to the issues of North–South trade, away from simple trade theory concerns. What does trade theory tell us about the effects of environmental regulation on North–South trade or an individual developing country? Let us look briefly at some evidence about a "Kuznets curve" for pollution. These tell us how emissions of various pollutants are related to economic development – the latter being represented by per capita income. Grossman and Krueger (1993) look for the level of income where urban emissions of suspended particulate matter (SPM) and sulphur dioxide (SO_2) urban emissions become inversely related to income. The turning point is found around $5000 of per capita (1985 US$). Selden (1994), on the other hand, looked for turning points for aggregate (as opposed to per capita) emissions of SO_2 and SPM. The turning points for the other two pollutants that they look at – NOx and CO – are at higher levels of income, although these appear to be highly sensitive to the estimation method. There are good reasons why the urban turning points come earlier than the turning points

for aggregate emissions. These include urban residents having more political clout, and the fact that with high urban land prices industry tends to move out, taking pollution with it. This seems to have happened in Indonesia (see Hansen, 1995: 4). Holz-Eakin and Selden (1995) find that CO_2 emissions, which have global effects (and costly abatement), seem to have no turning point at all. Whalley (1991) reports fossil fuel emissions of various countries in 1987. In emissions per capita, the US is way ahead with 5.03 tons per capita, the world average being 1.08. The US, the USSR and China were responsible for over 50 per cent of total world emissions. In terms of inefficiency of fuel use (grams of carbon per US dollar of GNP), China topped the list with 2024, with the world average at 327.

The evidence, then, seems to suggest two things. First, if there is to be expansion in economic activity then, based on historical evidence (which, of course, need not be reproduced in the future), total emissions will rise. Second, this also happens if there exists a bias towards Southern growth for a given level of world economy activity. In a world where the richer countries value and have a cleaner environment than the poorer ones, there might be a demand on the part of the richer countries that the South should not use its lower valuation of the environment for economic gain. Thus there could be demand for the harmonization of environmental standards. Different countries in general will have different optimal pollution taxes. These could be due to, for instance, the environment being a normal good after a certain threshold is crossed (as in the evidence above), or to different geographical features (for example, an oil spill in the choppy North Sea is less harmful than in the placid Mediterranean).

Bhagwati and Srinivasan (1995) point out that the country forced to harmonise its standards upwards will lose, whereas it is not always the case that the high-standard country will always gain. This accords with intuition. The former effectively faces a reduction in its environment endowment, but, for the latter, producers' and consumers' surpluses go in different directions. Proponents of harmonization have a scenario in mind whereby countries that have a lower valuation of the environment attract "footloose" factors of production and hence gain jobs and capital at the expense of the countries with higher environmental standards.

To get a handle on these issues, we need a model where income effects are important. In the absence of these, the departure of mobile polluting factors from an economy is a blessing. It increases the supply response of a pollution tax and hence is to be welcomed (see Copeland and Taylor, 1994). An excellent example of a North–South trade model with income

effects is found in Copeland and Taylor (1994, 1995), although the environmental damage that they consider is of the global type. Each country has a utility function, which depends on the goods that it consumes and on the environment. They show that if trade leads to the equalisation of factor prices then increased trade is accompanied by an increase in Southern pollution and a decrease in Northern pollution, so that world pollution is left unaffected.

In this situation, the South must always gain from trade, while the North loses. Trade leads to an expansion of Southern incomes and pollution. The North then cuts back on pollution and production. Were an environmental agreement to freeze pollution level at autarky levels then the North would gain from trade and the South lose. We see a version of this being played out in the real world, where the richer countries want to link free trade with the environment while the developing countries are opposed to this.

On the other hand, were trade not to equate factor prices then world pollution would increase while pollution in the North would fall and that in the South rise. Copeland and Taylor also consider the effect of a unilateral cut in pollution by the North. This would raise the price of the pollution-intensive good and thus the South's terms of trade. Here the South also benefits from a clean environment.

STRATEGIC INTERACTION

It is the prerogative of each individual sovereign country to choose its income–environment trade-off. A poor country places more emphasis on income, and for a rich country the reverse is true. Recall the discussion on "turning points" for pollutants above. In this sense, a low-income country would also be prepared to sacrifice the interests of its own future generation; we would expect the private rate of time preference to decrease with wealth, though theoretical models do not always deliver this.

From a theoretical perspective, the valuation of the environment is another area of diversity between nations on a par with wages, capital, skills etc. Furthermore, if a country has lower taxes in all industries then it does not imply that it will have an "unfair" advantage in all industries. To a trade theorist, this smacks of atavistic absolute advantage rather than comparative advantage (Bhagwati and Srinivasan 1995: 19). This leads to a related argument which has attracted a lot of attention. This is what Bhagwati and Srinivasan (1995), quoting John Wilson, call "the race to

the bottom". Would not footloose factors of production (such as capital and possibly skilled labour) be attracted to a low-environmental-tax country? This in turn could make the environmentally conscious country opt for a competitive abandoning of its standards. The two countries are thus engaged in a competitive downward spiralling of environmental standards. In technical jargon, there could be Nash equilibria, with too much pollution globally due to low environmental taxes. In the literature these are often referred to as the "pollution haven hypothesis" or the "industrial flight hypothesis."

To do justice to these issues, we need models that take account of the following three circumstances: (1) that there is environmental awareness, i.e., that people value a clean environment; (2) that there is strategic interaction in the goods market; and (3) that government policy can cause national industries to expand or contract. In the North–South models discussed above, there is no conception of strategic interaction. This is a sine qua non for any reasonable policy discussion. Multinational enterprises typically do not take prices as given, or earn normal profits. Policy must affect the distribution of rents across countries – a process known as rent-shifting. So the crucial question then is whether a government environment policy stance will induce sufficient rent-shifting for a country to become better off even after the environmental degradation is taken into account.

Peter Kennedy (1994) addresses these issues. He considers a second-best world where the governments in each of two countries have available to them one instrument – an environmental tax – with which to address the two objectives of trade policy and controlling pollution. He considers Nash equilibrium taxes, and shows that policy works through three channels. The first is operative if there is transboundary pollution. Each firm neglects the effects of its actions on aggregate pollution, as we saw in the section "Some Simple Analytics". Then there are the rent-shifting and pollution-shifting effects. He shows that the former dominates the latter. Thus a government has an incentive to lower its taxes, which raises domestic production and thus welfare, but also pollution. In a symmetric equilibrium, i.e., with every government lowering taxes, no country gains at the expense of any other but the world ends up with much higher pollution than were a cooperative solution feasible. Kennedy cautions us that this cooperation may not always be possible to achieve – that is, a Pareto optimal point may not be in the core.

Xing (1994) considers a variant of Kennedy's model. He considers two countries, with one of them producing only for export (the LDC) and the other one producing for domestic consumption. The governments set

pollution taxes, and the firms play a Cournot game. Suppose the importer sets its tariff at zero, and imposes the optimal environmental tax. In this setting, the exporting country's welfare could increase if it lowers its pollution tax below its marginal environmental damage level, because then its exports increase and thus it shifts "rents" towards itself. The importing country could gain or lose. This is because the consumers gain from cheaper imports, but domestic firms lose. If the importing country loses then it could still set the pollution tax at its optimal level, and impose the optimal tariff on imports. This would convince the exporting country to desist from starting the race to the bottom, because it would end up damaging its environment without being able to engage successfully in rent shifting. The credible threat of a tariff is enough to prevent the exporter from using lower pollution taxes as a strategic weapon. The result is only moderately interesting, because it gives the importers two instruments, a pollution tax and a tariff, for the two targets of rent-shifting and the environment.

How sensitive is this result to the Cournot formulation? One suspects it is very sensitive to the model specification, because, as Eaton and Grossman (1986) showed, when we move from a Cournot game to Bertrand game, rent shifting will involve the domestic government moving from an export subsidy to an export tax. However, much work remains to be done in this area. The virtue of the existing work here is that it shows at least how a strategic (hence non-competitive) partial equilibrium model can help our understanding of a phenomenon that otherwise appears to be xenophobic.

One can gain an understanding from these models of why the North may want to prevent the South from using the environment as a cost-reducing or rent-shifting factor. This could lead to a demand for the harmonization of standards. But even had we been shown convincingly that there may be a good case for harmonization of standards (which we have not), we would then have to worry about how it is going to be implemented. One cannot but agree with Bhagwati and Srinivasan (1995) that this poses formidable problems, and in the rich countries it is definitely going to be captured by protectionist lobbies just as in the case of the anti-dumping exercise.

The proposal that Bhagwati and Srinivasan put forward, however, is not appealing. This is a promise or agreement by OECD firms to maintain the same standard in the Third World as at home. Some multinationals already do that, though certainly not all. If their objective is to move to the Third World for environmental reasons, they could get around an agreement of this type very easily. Multinationals have been experts at sanction-busting.

Finally, I turn to the question of the empirical importance of the idea of a pollution haven. Is a low environmental tax an important consideration in plant location for firms? Markandya (1994b), summarizing a UNDP/UNCTAD multi-country project, finds that most firms tend to feel that the mean of the environmental factor is not as important as the variance. The Chinese report in that project felt that there was some migration to China due to higher standards elsewhere. Poland – a transitional economy – experienced a severe contraction in its steel and chemical industry due to stringent pollution standards, among other reasons. The earlier literature summarized in Dean (1992) finds that most dirty industries have moved within the North! At the aggregate level, the share of North America in pollution-intensive products fell from 21 per cent to 14 per cent between 1965 and 1988, while Southeast Asia's share increased from 3.4 per cent to 8.4 per cent during this period (Low and Yeats, 1992). Also, between 1973 and 1985 overall direct foreign investment by the US chemical and mineral industries increased at a slightly greater rate than that for all manufacturing industry (Jaffe et al., 1995). Environmental considerations (as measured by sulphur emissions in the recipient country) are important in the foreign investment choices of the US chemical industry.

What should one do if the other country does not share one's green preferences? Is imposing a trade barrier the right way? The tuna-dolphin case is the best example of such a trade sanction. Bhagwati and Srinivasan feel that education and other moral suasion or compensation are preferred alternatives. One cannot deny that this is a superior alternative to the flexing of economic muscles by a stronger nation – they point out that a weaker country could hardly resort to similar action on something that it found morally repugnant. Thus Germany can insist that Colombia use disposable packaging material for coffee, or that if it chooses to use metal containers then it should take those back. The latter course effectively would double Colombia's transport costs (see Markandya, 1994b).

One ostensible education device is eco-labelling. In principle, it is supposed to educate the consumer about the quality of the product. In practice, however, its performance has been far from satisfactory. In fact, it acts more like a non-tariff barrier. The criteria of award are not scientific, verification is unnecessarily strict and almost exclusively is imposed on importers by the importing country (Markandya, 1994b). (There is a large literature on the subject – see, e.g., the chapters by Motta Veiga and Bethlehem, Chapters 4 and 5 in this volume.) The suggestion of compensating the reduction in output suffered by a less developed country

in remedying something that a rich country finds "unethical" is unexceptionable. If the Amazon rainforests are important to the rest of the world then Brazil should be compensated for preserving these. There is, of course, a free-rider problem among both those making the payment and those receiving it. A trade sanction may or may not have achieved the desired objective of preserving the rain forests. A ban on the export of timber from Côte d'Ivoire forced that country to process timber in its sawmills, although these are highly inefficient. Clearly, trade policy should be used only if there are no other more efficient instruments available. This conclusion is shared by Sáez on the subject of forestry in this volume.

TRANSBOUNDARY POLLUTION

In the analysis of transboundary pollution, it is necessary to distinguish between a cross-boundary acid-rain type pollution and emissions that damage the global commons. In both cases, if the offending country refuses to cut down its discharge of pollutants, trade sanctions could be used. But the efficacy of these in the first case is doubtful, given that cross-boundary pollution could coexist with very little trade between the countries, as was the case between the EC and Eastern Europe before the collapse of socialism. Even with trade, the gain from polluting the neighbour could outweigh the gains from trading with the neighbour. There could be a case for the pollutee paying, with the attendant moral hazard.

The destruction of the global commons is well understood, although international negotiations have had mixed fortunes. There have been successes like the Montreal Protocol, while there has been much less progress towards a comprehensive treaty to cut carbon emissions. Does global warming call for cooperative action? Does such cooperation imply a harmonization of pollution taxes? It is easy to see that small countries would have an incentive to free-ride if the problem is global. A small country cannot take any action to change relative prices that it faces, and will realize that its emissions constitute an insignificant part of global emissions (with global consequences). It could make itself better off by cutting back on abatement. If a sufficient number of such small economies followed suit, we could have a "tragedy of the commons" at the global level (see the discussion by Chichilinsky, 1994; also Copeland and Taylor, 1995). Hence an international agreement could penalize deviant behaviour through trade sanctions. The Montreal Protocol, for instance, provides for both sticks as well as carrots, at least for developing countries.

When a country is large and takes others' behaviour as given (Cournot behaviour), the resulting pollution is "excessive". It is only when all (large) countries take into account the repercussion of their actions on others and do not exploit their respective monopoly power that we have a global Pareto optimum. Bhagwati and Srinivasan show that tax rate harmonization (on pollution) occurs only when all countries have the same technology (Bhagwati and Srinivasan, 1995: 80). This implies that in the real world, where different technologies coexist, we would not observe tax rate harmonization. An interesting extension to this analysis arises when a large country wants to spend less than the resources required to support a global Pareto optimum. The question now arises: Is a departure from free trade required? The answer is No, if the pollutive activity is production. A departure from free trade will distort consumption choice, which makes it an inferior policy tool. While the notion of a global Pareto optimum is attractive from a theoretical point of view, a problem (from the implementation standpoint) is that equity requires lump-sum transfers between nations. Lump-sum transfers are not possible in practice.

To conclude, the progress or the lack of it made in phasing out CFCs and carbon emissions are important in identifying which factors are important in securing global cooperation and guarding against deviant behaviour. The carbon tax proceeds make a very big difference to the welfare of the various groups of countries. A tax levied by producers would act in much the same way as the oil price increases of the 1970s, with the oil importers (both the OECD countries and the developing ones) losing. A tax on consumption, with the proceeds staying with the national authorities, would inflict large losses on the oil producers and the developing countries. An international institution that collects a tax has to concern itself with the question of the subsequent redistribution of the tax. In this context, some CGE work suggests that international tradable permits for carbon emissions reduce the loss of welfare by making adjustment that much more easy. However, this is also going to be bedevilled by the allocation mechanism. Further, need to bear in mind the fact that the polluting effects of different fossil fuels vary greatly. Coal, for instance, is 25 per cent dirtier than natural gas. A carbon tax would therefore increase the price of coal relative to other fuels.

These problems did not surface in the negotiations over the phasing out of the CFCs. The Montreal Protocol banning the use of ozone-depleting substances was signed in 1987, barely two years after the discovery of the ozone hole over Antarctica. Can this scenario be repeated in other international negotiations like those limiting the emissions of greenhouse

gases, which cause global warming? There are several reasons why the Montreal Protocol achieved what it did in the short time span. First, the scientific evidence showed quite unambiguously that CFCs were responsible. Second, the emissions were mainly from a few rich countries which also had a high level of green consciousness. This made negotiations and post agreement cooperation easier. Third, the market for CFCs was controlled by a few firms, who also produced the CFC substitutes. A global ban is also a facilitating device to prevent others from using CFCs. Finally, the firms had to contemplate the prospect of facing lawsuits from skin cancer patients (see Anderson, 1992b; Enders and Porges, 1992). For the greenhouse gases, on the other hand, the exact scientific evidence is far from clear. Moreover, given the widespread use of fossil fuels, most industries would be affected. This would also pose problems in dealing with deviant behaviour. As pointed out above, any global effort to lower the emissions of greenhouse gases would involve large income transfers.

CONCLUSIONS

In the immediate postwar period, it was the developing countries that were apprehensive about the implications of free trade. The OECD countries, with their comparative advantage in manufactures, were far keener on free trade. Some developing countries were able to take advantage of the liberal trading arrangements in place, and some forty years later it was the North that was importing manufactured goods. It was also the North that expressed concerns about human rights violations, labour standards and the environment.

The international dimension to the environmental problem adds two new elements missing from closed-economy models. First, the presence of many agents, with the attendant increased transactions costs (Cropper and Oates, 1992), is (almost) eliminated in international negotiations. Second, the incidence of taxation, which is consigned to a back burner in closed-economy models, comes to the fore in an international context. The absence of a supranational legal entity and a dispute over the sharing of revenues would make the implementation of tradable permits for pollution in the international context much less widespread than in a closed economy.

An environmental problem implies some sort of market failure. The solution lies in designing efficient mechanisms, and this may involve

taking a longer-term view. In the short term, fixing quantitative restrictions on emissions may be attractive (Copeland and Taylor, 1994). Tradable permits may be preferable, because they allow agents to take evasive action. A controversial point of view advanced by Porter (see Porter and van des Linde, 1995) suggests that government policy can make firms' profits go up by inducing firms to innovate. Be that as it may, environmental problems require some form of government intervention.

Does this imply that in the international context also government intervention is justified? In general, trade policy is not the appropriate instrument for addressing environmental concerns, especially when this policy is of the unilateral sanctions variety. There are good reasons for this. A country imports goods from many countries and many firms. An environmental tariff would require information on the pollution context of each producer, otherwise everyone will be tarred with the same brush. (See the discussion on countervailing duties and anti-dumping duties in Kevin Kennedy, 1994: 215-18.) Problems of measurement and allowing for differences in preferences and geography, etc., certainly call for not using trade policy. Lloyd (1992) points out that the standard environmental economics example, of a single upstream producer and a single downstream producer, may have something to do with not recognizing diversity, because the informational problems there are minimal. The ban in ivory trade penalizes all exporters of ivory, whether or not they cull their herds in a sustainable way.

Should free trade be abandoned as a basis for policy because the theoretical case for it is not so cut and dried anymore? We should probably follow Krugman (1995), who makes a political economy case for free trade after traditional trade theories have received a severe beating from non-competitive models. Since the problems of defining standards, verification, agreement on ethics, etc., are not easy to achieve, trade policy should be used only as a last resort for environmental ends. When trade measures are to be used, the larger is the number of signatories to an agreement that specifies trade restrictions, the less likely it is to be captured by protectionist lobbies.

Part III

International Environmental Governance

8 Global Governance and the Comparative Political Advantage of Regional Cooperation

Helge Hveem

THE PROBLEM AND THE ARGUMENT

The world is in need of better governance. The Commission on Global Governance (CGG) defines the governance problem as consisting of overcoming the flaws and inadequacies of existing institutions in order to resolve conflicts in an increasingly interdependent world, resolve them peacefully and democratically, and cooperate in managing finite resources and the redistribution of welfare. It argues that nation-states we no longer able to manage international affairs as sovereigns, and identifies a need to "weave a tighter fabric of international norms, expanding the rule of law world-wide and enabling citizens to exert their democratic influence on global processes" (Commission on Global Governance, 1995: xiv). Within this perspective, the commission argues that the "potential of regional cooperation has in many ways been insufficiently exploited in most parts of the world" (ibid.: 287).

Generally speaking, governance should be understood as the establishment and operation of a set of rules of conduct that define practices, assign roles and guide interaction when grappling with collective problems (Young, 1994: 3, 15). Collective governance implies sharing responsibility both for making decisions and for implementing them. This applies even if the two functions are separated in practice, and some responsibility is delegated from one level of collective action to another. A further implication is that a minimum of coordinated behaviour is observed by all participants, or that free-riding on agreed rules is avoided. Cooperative behaviour may still be observed in several issue areas in some parts of the

international system, such as in some sectors of international trade, but it is lacking in many others (including in trade). There has instead been a strong tendency to solve collective action problems by resorting to unilateral or bilateral actions.

This chapter, then, addresses a concrete issue: Is regional cooperation the answer to the problem of collective action at the international level? Is it the answer to global governance problems? And is it the answer for one particular issue area – that of managing the environment?

Environmental protection and natural resource management are issue areas where there is a particularly strong need for better governance (UNCED, 1992). We also know that collective institutions play an important role in providing incentives for improved environmental protection by individuals and firms (Kay and Jacobson, 1983). However, since most international environmental institutions are of relatively recent origin, and research on them also not abundant, there is not much solid insight to guide our discussion beyond this observation (Keohane et al., 1993). We therefore have to rely heavily on general experience about the first of the two questions – whether regional cooperation in general is the answer to collective action problems – when we address the second question – whether or not there should be regional governance of the environment.

This method – to deduce from the general to the specific – is rather generally accepted, and for good reason. For one thing, issue-areas are often interdependent. Management of the environment is linked directly to, or in many cases is an integral part of, governance of international production and finance, international trade and transport. Discussions of PPMs cannot be detached from discussions of industrial policy. There may, however, be a problem when discussing specific environmental problems. Governing climate change and the ozone layer may necessitate a solution different from what is optimal governance of CO_2 emissions or of international river basins.

This chapter argues that regional integration and cooperation schemes should establish clear perceptions of their respective comparative advantage in resolving international governance problems. We shall refer to such advantage as comparative political advantage. If such an advantage exists, it is for reasons to do with efficacy, legitimacy and identity. A governance institution is efficacious if it manages to create and maintain collective action at comparatively low cost. It is legitimate if the rules it sets for behaviour, and the ways it sets and monitors those rules, are voluntarily accepted and seen as binding by (most) participants. As for identity, it is assumed that the existence of collective identity is an

important precondition for the institutions concerned to function efficaciously and for these institutions to be seen as legitimate.

It is thus primarily in the combination of the three potential sources of advantage that we have identified that one also finds the answer to our puzzle: why regional cooperation is preferred over alternatives. The region is usually seen by people as less legitimate than the nation-state, and they also normally identify more closely with their nation-state than with the region. But the region may be more efficacious than the nation-state in solving collective action problems. And it may not only be more efficacious, but also command much more of participants' sense of collective identity than a global institution. The most lasting examples of international "order", past and present, are based on an international "society" founded on common interests or values. The latter facilitate communication, the definition of common rules and the evolution of common institutions (Bull, 1995).

We still appear to confront two types of problems at the outset. First, what constitutes a comparative political advantage is controversial. Both analysts and practitioners apply different criteria. Neo-classical economists discuss regional cooperation as failure or success according to whether or not it exploits comparative economic advantage and whether or not it promotes efficacy. Furthermore, their interest in institutional aspects of the cooperative arrangement is mostly focused on the efficiency parameter. This school of thought typically views improved governance as a "leaner", cost-effective institution. Some members of this school may even argue that clear and transparent rules are what really matter. If participants face such rules and are left to a competitive market then there is not much need for any other institution to monitor them.

For other scholars, including the present author, the interest in institutions is usually not only broader, but also differently focused. In their view, we should look at how regional institutions contribute to just and/or egalitarian allocation of resources. They typically look at the relationship between the economy and the society, also as a redistributive issue. They may even focus on the developmental issue – that is, investigate which institutions promote improvement of productive forces and competence-building. They may be more open to promoting collective identity than to maximising individual utility. Finally, some would also focus on security aspects of regional cooperation, either in the narrow meaning of military security or in the broader sense of comprehensive security.

But at this point the second puzzle enters. One recurrent matter of contention is what should the relationship be between economic efficacy

on the one hand and market intervention in the form of environmental protection on the other. The puzzle may be represented by way of two questions that both problematise the efficacy issue. The first of these questions is whether the governance institution chosen to cope with a given problem area actually covers – or governs – that area efficaciously. The second is whether institutions have the capability to produce decisions and have them implemented.

On both these questions, the answer may differ with issue-area or sector. Economic globalization may appear to make the nation-state obsolete, or at least make it too "small" and weak to govern economic relations. Regions become the optimal alternative, mainly because they are placed in the intersection between global processes and nation-state institutions that attempt to cope with them. The deepening of the European Community, by creating the European Union, is believed to be a response to the globalization process and to increasing global competition. Does this also apply to environmental problems? Some environmental problems, such as climate change issues, are global in character, whereas others are typically local. But some make a general case in arguing that most environmental problems, even if they are not strictly local by nature, must be handled in a decentralised manner (Ostrom, 1990).

Another version of the decentralisation option, which at the same time represents an alternative to implementation by public institutions, is to let the economic agents manage themselves. The alternative to public regulation is non-governmental management, or voluntary agreement among private firms or other economic agents. Just as the issue at the national level is what role the state is to play compared with that played by civil society or the private economy, the issue at the international level is becoming a matter of whether governance is to be exercised by intergovernmental institutions, or whether it could or should be a matter for voluntary and self-regulatory, non-governmental and transnational institutions. Those are clearly matters of political or institutional, not economic, efficacy.

WHY REGIONAL COOPERATION ANYWAY? A NOTE ON CAUSES AND TYPES

Why do nations cooperate or fail to cooperate on a regional basis? A brief review of the literature will establish some major categories of explanation. A start may be made by classifying the main types of regional cooperation.

Agency: Three Types of Goal

The motives or goals for regional cooperation may be classified into three broad categories. First, the goal may be to maximize utility, for instance economic growth or increasing rents. An underlying assumption that is normally found to lie behind such motivation is that increasing division of labour and trade among a group of economies in a region enhances growth. One specific motive may be to reduce transaction costs, which represent barriers to exchange, such as tariffs or non-tariff barriers, bureaucratic–administrative procedures, and the like.

The utility-maximizing motivation may also be based on non-economic, mainly ecological goals. These may be to combat desertification, regulate commons (river basins) or enhance environmental protection for the collective good. The regional scope of this issue-area relates basically to two interrelated dimensions. The first is the fact that a certain number of environmental problems are intrinsically shared at the regional level, because ecological space does not correspond to state authority, and is not global in reach. Second, changes in ecological space that has a regional character affect the state system directly; an example is when desertification results in migration such as has been the case in the Sahel.

A second type of motive or goal is security. Examples of regional cooperation agreements driven by this are the European Coal and Steel Community (ECSC), the Southern African Development Cooperation Conference (SADCC) and ASEAN. In more recent times, the security motivation has not necessarily been associated with military security, but has rather been based on a comprehensive security concept. Destabilisation of neighbouring countries caused by violent domestic conflict has been a security issue in Indo-China and Central America, and more recently in Africa; the side-effects on the region of the conflicts in Liberia and Rwanda are cases in point. Furthermore, security-induced motivation is clearly associated with identity or utility motives. Again, post-ECSC European integration and ASEAN are cases in point. Some authors not only see security concerns as including "environmental security" but also argue that concern for environmental security is a major and so far under-utilized source of regional integration (Dokken, 1996).

A third category is related to the creation or defence of collective *identity*.Cooperation may result from a manifest need to establish, or defend, what is perceived as the fundamental cultural basis, socio-cultural distinctness or the particular institutions characteristic of a region. Even rationalist theories may include the identity factor in accounting for

cooperative behaviour, or as a precondition for cooperation. Examples are the Monnet–Schumann "idea of Europe" which was accepted by Realpolitik leaders like Adenauer and de Gaulle because it represented a radical breach with the perception of Europe as an eternal war zone, and the theory of a "regional awareness" found in Deutsch's communication perspective (Deutsch, 1957). In this perspective, inter-societal relations shaped by a sense of community, mutual sympathy, a feeling of "we-ness" and trust constitute the basis for regional integration and cooperation.

Decision-Making Styles

The literature on regional integration distinguishes between three (four) broad decision-making styles: functionalism, representing a perspective that offers public political institutions little and private sector agents a dominant role; neo-functionalism and federalism, which represent two different roads to a certain degree of supranationality or decision-making autonomy for the regional institutions vis-à-vis member states; and intergovernmentalism, which represents a decision-making system at the regional level where nation-states retain sovereignty through central government and exercise decisive power over cooperation (Chime, 1977; Hurrell, 1995; Moravscik, 1993).

There is no general theory that holds that a particular type of motive is typically associated with one particular decision-making style. The controversy in the integration literature has mostly been over which of the three (four) is typically associated with the utility motive that is widely assumed to guide most projects of regional economic cooperation. Put differently, the debate has, most particularly, been over the normative issue – which decision-making style is optimal for promoting cooperation? Does successful regional integration presuppose a bottom-up process, whereby the initiative to cooperate comes from economic agents or societal groups who want certain functions to be taken care of by regional institutions (the functionalist approach)? Or is it a top-down process, where political institutions of a federal (supranational) or an intergovernmental nature take the initiative? The issue, in other words, is whether regional cooperation is dependent on an economic or social demand or a political supply mechanism to be put in motion.

If environmental protection is considered in light of the utility motive, the particular issue here is what type of decision-making style is (most) conducive to regional cooperation in that issue-area. Environmental groups, in particular activists, pursue a bottom-up approach; their lobbyism in the

European Union is a case in point. At the same time, many of them appear to favour a fairly strong, top-down, federalist approach to regional cooperation on the environment, as witnessed in their lobbying for stricter and more binding environment protection clauses in union agreements, and demands by several American organizations for binding agreement in the NAFTA. These issues are picked up in the next section.

Structure and Context: Three Factor Categories

A consideration of structure and context is necessary for reasons concerning both the widely held view that the world is being globalized and the agent–structure debate in international relations theory. Among structural characteristics that are believed to influence behaviour, we may for our purpose identify three broad categories.

The first represents changing industrial organization. The end of the cold war and widespread socio-economic and ecological crisis combine with the progress of economic liberalism and globalization to create a world considerably more complex, potentially more fluent and therefore arguably less predictable than at any time since World War II (Rosenau, 1990). Economic globalization is sometimes used as a catch-all concept, and its extent and effects are quite often exaggerated. Extra-regional ownership of manufacturing industry is still high in Latin America and is increasing in the OECD countries but is still low in Asia; trade liberalization is also increasing, but slowly and unevenly (CEPII, 1992). Even in financial markets – the one sector where globalization has been the fastest since the 1980s – liberalization has not been equally far-reaching in all countries, regions and branches (Underhill, 1997). Although not matched by reality, the pervasive nature of globalization rhetoric is indisputable, and means that in its deepest sense globalization is the spread of an idea – of one global market for localizing production, mobilizing capital and labour, and marketing and distributing goods and services.

The effect of globalization on environmental management is related primarily to industrial organization: that is, the competence-building, production and distribution structure of the world economy. This international industrial organization links a multitude of units across countries and sometimes regions with the purpose of providing the materials, inputs of competence and technology, manpower and management for the production and distribution of a particular product. Such activities are more significant for the distribution of welfare and for impacts on the environment than international trade: institutions such as the

WTO and ISO link investments, production and trade in ways that make mechanisms such as PPMs and life-cycle control more important than simple trade measures (Tussie and Vásquez, Chapter 6 in this volume.)

The second structural factor is power hierarchy. It may be sub-divided into two sub-categories. One reflects the presence of a hegemon, an actor whose power and capabilities are such that they can dominate the region. It is a matter of continuous debate in theorizing over regional cooperation whether it is promoted or blocked by the presence of hegemonic power, such as India in SARCC, the United States in NAFTA, Brazil in Mercosur and South Africa in SADCC. According to hegemonic stability theory, the role of the hegemonic power is benign and a prerequisite for the stability of a cooperative system, as the hegemon mobilises the resources necessary to redistribute gains and losses among participants in order to encourage cooperation (Kindleberger, 1973). In practice, however, there is often a widespread perception, or fear, that the hegemon is malign and exploits hegemonic power in its own favour (Strange, 1987).

The third structural factor that may affect regional cooperation efforts is interdependence. A relatively high rate of exchange represents a situation where the economies and societies involved are mutually dependent, or interdependent (Keohane and Nye, 1977). Exchange of transboundary pollution or the sharing of natural resources may be part of an interdependence structure in which the behaviour of the entities concerned will both affect and be conditioned by the behaviour of the other(s). Such a structure therefore offers a reciprocity of influence and reduces incentives to free-ride. This also applies if all parties contribute to air pollution. Regional cooperation may thus result from a mutual understanding that all parties are better served by coordinating action than by acting unilaterally.

But this is obviously not always the case. Consider the cases of pollution control and of sharing a river. One neighbouring party that pollutes may have no incentive to coordinate with another that does not. Similarly, if one party – the "upstream country" – controls the source of an international river its position is different and stronger than that of the "downstream country". This structural inequality is said to be prominent in such cases as the Eufrat–Tigris, Jordan and Rio de la Plata, and is probably the cause of Egypt's threat of war against any party that interferes with the waterflows of the Nile. Conflicts over waterways are widespread and latent (Clarke, 1991), but alternatively the presence of such conflicts may push parties towards cooperation.

Cooperation in such a situation may be promoted by two factors. One is the fact that interdependence is complex, affecting a variety of sectors at the same time. A position of bargaining strength for one actor in one particular sector is usually balanced by a position of strength for another actor in a different sector. Complexity offers a potential for linking respective bargaining positions in an agreement. The second factor that supports the integrative potential is neo-functionalist theory's assumption of a spillover integration success in one sector will spill over into another. Such a spillover mechanism is mirrored by a "spillback" mechanism: integration failure in one sector may spill back into another and encourage non-cooperation.

Keohane and Nye's institutionalist treatment of interdependence follows neo-realist theories in viewing it mostly as a structural relationship among nation-states. Another increasingly important perspective on interdependence sees socio-economic networks, some strongly influenced by a common identity (even ethnicity), as the driving force behind regionalisation. The role of such cross-state networks is believed to be of particular importance in East Asia, where they are known inter alia as "growth triangles" (Thant et al., 1994) and also in Africa (Igué and Soulé, 1993; Meagher, 1997; Lavergne, 1997). In the latter case boundaries, in particular the existence of differences in tariff levels and structures between contagious states, stimulate trade between them and lead to growth and development of the participating agents and social groups.

This appears, first, to represent a total contradiction of the received wisdom that economic growth and development result from a liberalization of inter-state trade, and that differential and high trade barriers are detrimental to it. A major point in the World Bank's Africa report is that a continuing decline of state-imposed barriers to inter-state flows is paving the way for increased regional economic cooperation (World Bank, 1994). Second, this trade activity – referred to usually as "informal", "secret", "parallel" or even "smuggling" – is outside the control of the state. According to Bach, it is the source of a "trans-state regionalism" that challenges, and sometimes breaks down, state authority (Bach, 1995, 1997). When transboundary trade issues combine with security and/or environment problems, however, there are indications that the state becomes more actively involved and also more influential in directing the socio-economic processes across boundaries. In the Asian case, it is evident that the state takes a role in trans-state relations, sometimes even pushing them.

The final observation relates more to theoretical and methodological assumptions. International and domestic factors interact and influence each other mutually in shaping the outcome of the issue, whether agency or structure is more important (Putnam, 1988; Evans et al., 1993; Hveem, 1994, 1997). Authors who advocate such an interactive two-level model of regionalism, however, still have different views on the relative importance of domestic compared with international factors, or agency as opposed to structure. One school explains national policy on regional cooperation as a result of domestic political processes. Here, the character of the state institutions, the strength of civil society and the nature of state–society relations are crucial factors, not only for the efficiency also but for the legitimacy of the regional integration project (Katzenstein, 1996). The environment protocol of NAFTA, and the increased emphasis on environmental issues in the treaties of the EU, including the Amsterdam Treaty, are largely explained by the pressure exercised by environmentalist lobbies and public support. Another school places relatively more weight on international, structural factors, and explains, for instance, East Asian regionalism in terms of three driving forces: globalization of production networks, increased intergovernmental disputes over bilateral economic relationships and the rapid pace of technological change (Bernard and Ravenhill, 1995).

If or when foreign agents completely dominate domestic actors and institutions, there is imperialism, not integration. When such domination consists of more partial and less unilateral influence, and is relatively more based on mutual interest between exogenous and endogenous agents, then integration processes may also result in fragmentation of the nation-state. Such fragmentation may be the result of a process whereby some agents and groups in the country ally themselves with foreign groups to form transnational alliances, whereas other agents and groups in the same country oppose the goals of such alliances. The process has been particularly visible in those countries that have arranged referenda to legitimate their decision on whether or not to engage in regional cooperation, or where that decision has become part of a general election campaign. Leading political actors in Austria apparently wanted EU membership in order to weaken a historically very strong corporatist system regulating the labour market, and many of Mexico's business and political leaders wanted NAFTA in order to deregulate and liberalise the domestic economy, including agriculture (Calva, 1992). It seems, therefore, that certain groups in those countries supported stronger regional governance in order to promote their own interests and increase their power.

THE COMPARATIVE POLITICAL ADVANTAGE OF REGIONAL GOVERNANCE

Regional governance by public institutions faces competition not only from the global and national levels but also by private agency, which is increasingly demanding and taking a greater role in global governance. The globalization idea is linked closely to deregulation – that is, to reduced public governance and more powerful, increasingly autonomous private agency. The nation-state and the state are said to have lost governance power due to changes in the industrial organization of the world economy. One line of argument for this view holds that the "second industrial revolution" necessitated a strong state, a home market as the base, and industrial policy to guide and assist private agency. With the coming of the "third industrial revolution" based on information technology and other "new technologies" (Reich, 1991; Cerny, 1995), and as a result of the reduced importance and changing character of security concerns (Strange, 1996), there is no longer such a prominent role for the state.

Under the second industrial revolution, but also in less industrialized societies, state–society relations were in many cases organised in neo-corporatist procedures and channels of interest representation, which appeared to cope well with socio-economic and political stabilization problems. Such corporatist patterns were seen in various forms in countries such as Argentina and Uruguay and in North-Western Europe (O'Donnell, 1973; Katzenstein, 1985), and paralleled by neo-patrimonialist and other similar state–society institutions in other countries. There is no across-the-board and universal evidence that these institutions are disappearing under the impact of the changing industrial organization and new popular demands (including those of environmentalists), nor for a global weakening of the state as an institution and agent. The state is certainly being trimmed in a number of countries as a result of liberalization trends under the structural adjustment programmes (SAPs), but at the same time there is domestic pressure to maintain it. Not only "strong" Brazil but also "weak" Jamaica and Somalia were able to resist SAP pressure by mobilizing domestic opposition against radical reforms (Evans et al., 1993), and current popular concern with socio-economic poverty and unemployment in Europe also appears to demand a stronger state.

Polanyi has offered a convincing historical argument that massive liberalization will trigger social response in the process (1945). Historically a primary role for the nation-state is to serve as a labour market, that entity

or level of governance that guarantees individuals a job. Polanyi also argued for a stronger regional level of governance – the latter for the simple reason that there is, in his opinion, no alternative to it. It is either globalization under the control of capital or regional cooperation among governments (Polanyi, 1945).

But this is not self-evident. In order to defend the argument, it is necessary to differentiate between the nation-state and the state. The latter still plays a role as an efficient, developmental and widely legitimate institution in a number of countries in the developing as well as the developed world (Evans et al., 1985; Wade, 1990; Amsden, 1994; Evans, 1995). The developmental state also is of greater importance than the more limited role assigned to it in the World Bank's "miracle study" (World Bank, 1993). This observation is the more true when analysis becomes both intertemporal and interregional. The Asian Development Bank indirectly supports the critique of the World Bank report.

Second, in Europe at least, there is a tendency for the state to attempt to relocate and reorganise some of its decision-making power, so far exercised at the level of the nation-state, to the regional level. Such "Europeanization" of decision-making is to a large extent a response to globalization, and particularly to the growth of two alternative governance structures – one centred on international private economic governance (mainly transnational corporations), and one represented by transnational society (non-governmental organizations, coalitions and networks). The former exercise considerable power, but evidence on whether they export pollution from the North to the South is mixed. In a number of cases, there is proof that transnational corporations contribute to environmental upgrading (Leonard, 1988; Ruud, 1992; Hansen et al., 1996). Such cases include those that put new issues like the environment higher on the international agenda, and its increased emphasis on trans-state identity is also related to an increased demand for governance at local, sub-state levels (Keating and Loughlin, 1997).

We may thus formulate our first hypothesis on the comparative political advantage of international regions thus:

> *The comparative political advantage of regional cooperation as compared with the nation-state is that the former may more effectively than may the latter regulate internationalization and globalization processes and redistribute their positive as well as negative effects among members.*

The two alternative governance systems must coexist with the inter-state system, but it is more difficult to say whether and how they may work out

cooperative relations and divide governance functions among themselves. The issue, in other words, concerns the types of "shared governance" that may be developed. Governance performance by international business would normally be associated with the efficacy goal, governance by international society to legitimacy and/or identity. The transnational or trans-state tendencies identified so far may also be associated with an increasing participatory tendency and a quest for more legitimate governance (Hocking, 1997). All this is said to have led to a "new regionalism" that links regions or other local entities at the sub-national level across nation-state boundaries (Hettne, 1994).

Many see regional integration in the economic or environmental subsystems as a threat to a fully competitive global market. But the "bloc" hypothesis is contested as too rigid and absolutist even by liberal economists and liberal institutionalists. One illustration of the latter is the idea of "layered governance". Its premise is that a more liberal global order is an idea that carries widespread support and should, because of the complexity and variety of the issues and problems it has to cover, be governed through the delegation of some governance tasks to different structures and lower levels of international governance (Yarbrough and Yarbrough, 1994). Rosenau (1990, 1995) identifies a trend in world affairs whereby authority is being relocated from the level where nation-states interact to arenas where subnational, transnational and sometimes even supranational institutions and agents play significant roles.

Substantial evidence indicates that transnational firms as well as governments often favour regional governance, rather than generally preferring global over regional economic order as claimed by Milner (1988). They are in fact often liberal within a regional context. Their anti-protectionism is often geared towards regional markets in which the firms have established integrated production frequently linked in cross-border networks with production in the home market. They do not as a rule oppose protectionism towards third parties outside the region. This is demonstrated in several sectors in Europe (Sally, 1995) and East Asia. Firms favour regional governance when environmental standards are closely linked to technological development and affect the competitiveness of their regional cross-border production networks. Rapidly increasing costs associated with research and development programmes and increasing competition based on new technologies appear to be the major causes. They make it necessary to pool resources to finance costs and cover risks (Sally, 1995; Mytelka, 1993). The second hypothesis, therefore, is as follows:

> *In a more competitive world requiring faster adjustment and higher risk-taking in order to preserve competitiveness for firms (and nation-states), the region may represent a buffer, or collateral, or a critical mass source to finance and organise vital research and development*

Regional cooperation represents a potentially stronger bargaining base in inter-regional competition, but collateral is also obtained through strategic alliances and cartels across regions. What in particular is the comparative advantage of regions in the area of environmental protection? The point has been made that:

> *Regional cooperation may be more effective than nation-state institutions in supporting some domestic interests against other interests within the region (domestic as well as foreign).*

The examples of Austria and Mexico offered above appear to identify business or market-oriented politicians as the prime carriers of such a motive. But they are not necessarily the only ones. Sub-national or local communities in several EU countries are known not only to lobby but also to ally themselves with Brussels in order to pressure their home governments to make concessions on matters where the local and national governments conflict. The regional level is also used by environmentalist lobbies to exercise pressure on latecomers in environmental protection. Weak regional institutions may certainly favour the opposite outcome and allow the "least common denominator" to rule. Strong regions may work in the opposite direction.

Finally, the regional level is identified by labour as a potential source of increased power. Renault's decision to end automobile production in Belgium and lay off 3500 automotive workers caused a strike that spread from Belgium to France, the home country of the corporation, and ended in a "Eurostrike". It also started within the corporation, but then spread to include workers outside it and ended up mobilising centre-left members of the European Parliament as well. One of the claims of the workers and their supporters has been that Renault's decision is a breach of EU policy and rules, which inter alia require that the interests of the totality of the workforce at the regional level is taken into account (*The European*, 13–19 March 1997). The perception that has evolved from this process is that the region may be a very important level on which labour may influence governance over the primary targets of the economy, such as employment. If it has become so to this date only in Europe, it may soon become so in other regions as well.

But business and labour need not necessarily follow conflicting goals with respect to regional integration. A second and different hypothesis as to why business and labour want stronger regional institutions is therefore the following:

> *Some economic interest groups want regional integration to create more predictable rules in their most important markets.*

This motive has a general rationale in the increased complexity and turbulence described above that characterizes the present era. It may be particularly strong in regions characterized by economically and ecologically highly interdependent nation-states. If economic interdependence is not a mover of regional integration then ecological interdependence could be. Regulating the access to common waterways or fish stocks, or controlling air pollution or the dumping of toxic waste are cases in point. As an example, there is reason to believe that the fight against CO_2 emissions and the need for corporate managers to address it strengthens the European Union as a unit of coordinated action. Managers want the regional institution not only to set up a regime that they may follow themselves but also to get help in facing increasing competition from outside the region.

Broadening the issue to include the economic sub-system, the above arguments in favour of regionalism could easily be overturned if the efficacy question is reformulated. A general distinction may be made between efficacy in establishing rules and efficacy in implementing them (Underdal, 1997). If that distinction is followed then a multilateral regime would ceteris paribus involve lower costs and thus be preferable to any institution involving fewer parties. However, the most important costs associated with implementing multilateral agreements are those required by the need to control against free-riding. The larger the number of parties, the generally greater the probability that someone will defect, although the more imperfect is information on motives, opportunity costs and other factors that determine behaviour of parties the greater may be the costs involved in preparing for the possibility of defection. Add to these factors the fact that concerns with sovereignty still prevent international institutions from being vested with supranational power to intervene with defectors and the next hypothesis would be:

> *Unilateral or bilateral action to implement international agreement to co-ordinate policy is preferred over multilateral because of the efficacy of the former in controlling against free-riding, but regional institutions are preferred over global ones for the same reason.*

This may explain why unilateralism, in particular in its more "aggressive" version (Bhagwati and Patrick, 1990), and bilateralism have proliferated in the 1970s and 1980s and have still been operative in the 1990s. Concern with "fair trade" has been one manifest political motive here, in particular for major actors such as the United States and the EU. One may add that particular interest groups who are in a strong market position, but face threats from competitors, have been actively using their domestic political strength to demand and get unilateral or bilateral action (Yoffie, 1983). In other words:

> *Those particular interests that stand to lose if multilateralism is applied prefer bilateralism or unilateralism over plurilateral or multilateral institutions, but prefer regional over global ones.*

However, not all economic, political and social actors are only or primarily self-interested. Ideas often matter decisively in foreign and foreign economic policy (Goldstein and Keohane, 1993). For those agents, therefore, who believe strongly in the multilateralist principle, and hence accept the idea of competition no matter the consequences, the preference structure is naturally different:

> *Those who out of principled belief in the idea of equal opportunity to compete, and by consequence are prepared to accept the prospect of loss, will prefer global multilateralism over regionalism under any circumstances.*

But for pragmatic multilateralists, regions may offer a compromise. They prefer multilateralism before uni- or bilateralism, but accept that global institutions may be weak in implementing rules. In order to avoid the former, they may prefer a regional solution if or when it covers their most important market, that is the bulk of their exports. Thus:

> *Multilateralists may pragmatically chose regionalism to implement multilateral rules and principles as a second-best option in order to avoid unilateral or bilateral outcomes being chosen over global.*

A few caveats concerning identity and legitimacy apply. Prospects for integration in a region with competing or conflicting identities may be poor, while prospects in a region with a strong shared identity may well be good, even when other factors such as a common threat or

interdependence are not present. Collective identity, in short, may both be underestimated in theories of regional cooperation and become more important in the future (Higgott and Stubbs, 1995). In determining the importance of legitimacy, the type and nature of political culture become significant. The more democratic and the more developed civil society, the more important legitimacy becomes as compared with efficiency. Legitimacy is normally vested in national or local institutions because familiarity with institutions and their historical standing, as well as transparency in the way they operate, are important legitimating elements. But efficacy may also be supportive of or otherwise closely related to legitimacy. An absence of institutions at the regional level may reflect a poorly evolved common political culture.

Thus difference in political culture may explain why Europe has stronger regional institutions than Asia (Katzenstein, 1996). There may, however, be another explanation for this variance. The legitimacy of institutions may be more important in Europe than in East Asia. The reason why Europe appears to be dependent on a deepening and democratisation of its institutions – on developing more federal or supranational power and procedure – may be that demands on institutions are also stronger in Europe because civil society is stronger. This may be one important reason why Asian regionalism also appears as very inter-governmentalist in its decision-making style compared with most other regions, including several of those in Africa and Latin America.

CONCLUSIONS

The factors seen above to favour regional cooperation probably apply as much to environmental issues as to economic or security issues. In the economic sub-system the global level in an ideal-type situation sets the rules, while the role of regional governance is simply to implement those rules. The principle of non-discrimination as a basic condition for competition is vital in investments and trade. Global environmental problems associated with climate change require global rules. But many environmental problems do not fall under global regimes, because in their very nature they are localised. They offer a wide scope for increased cooperation based on common regional interests.

The debate between the "global level only" and the "layered governance" schools will no doubt stay for a long time, not least because the debate is

largely dominated by economists. To frame the debate on governance in such terms is to focus the issue too narrowly: politics is mostly ignored, and unilinearity and equilibrium are focused at the expense of an evolutionary view of change. Only efficacy is emphasised at the expense of other motives, and ideas and factors that affect policy preferences are left out. The prospects of creating the Asian and Pacific free-trade area under APEC, a market that would eventually cover half of the world's present purchasing power, is likely to be strongly affected by the strength of an alternative regionalism based on political processes and identity. If the latter takes hold, it will make the proposed East Asian Economic Caucus (EAEC) a much stronger alternative (Higgott and Stubbs, 1995), while APEC could become an important vehicle for environmental upgrading. Furthermore, private or non-state agency may be important in implementing action under rules that are set by legitimate public bodies, but where the regulatory role of the latter is more or less limited and the role of private entrepreneurial dynamics or market forces becomes substantial.

Motives and factors presented here will all be found to influence the evolution of regional cooperation in some way. But their respective impact – or the relative role of agency and structure – will vary with the motivation of the agents concerned, and with the historical memory, the learning experience and the structural context that influence the particular regional project. The agenda for further research is, in other words, both detailed and difficult. The world cannot do without governance exercised through public institutions, and the issue is thus not whether there is still a need for state action but rather how to make it more efficacious and at the same time maximize its particular comparative advantage – that public institutions in principle still carry more legitimacy than private agency.

Keating and Loughlin's argument about sub-national regionalism is equally true for international regionalism: "While the theme of regionalism is increasing in importance, there is an increased differentiation between types of region and their potential" (Keating and Loughlin, 1997: 18). This makes generalizations difficult, but the role of the international region could be to become a more effective public institution than each single state in dealing with certain problems associated with global processes, and at the same time to represent a level of collective identity that makes it more legitimate than any global institution.

9 Trade Restrictions for the Global Environment: The Case of the Montreal Protocol

Jonathan Krueger

A significant component of the wider "trade and environment" debate that has been taking place in recent years relates to the use of trade-restrictive measures in multilateral environmental agreements (MEAs). A central concern for many developing countries is that such measures will be used for protectionist rather than environmental purposes, and that they will lose access to markets for their goods as a result. But what is known about how such trade restrictions come to be included in an MEA in the first place? Are such measures purely dictated by the desires of powerful industrialized countries, or is true international cooperation at work? What are the interests of developing countries in supporting or opposing such measures?

This chapter details the experience of the inclusion of trade restrictive measures in the Montreal Protocol on Substances that Deplete the Ozone Layer. It argues that agreement to the Protocol by developing countries was in some cases related to the trade restrictions, while in other cases a larger incentive package was required before the Protocol was signed. Developing countries with large domestic markets and production capacity were largely unaffected by the trade measures, whereas smaller developing countries – especially those with export industries relying on the use of ozone-depleting substances (ODS) – found the trade measures to be a considerable incentive to sign the agreement. The structure of the chapter is as follows: the next section briefly outlines the background to the Montreal Protocol and its amendments; the third section summarises the trade restrictions of the Protocol (Article 4) and discusses the specific issues relating to their inclusion; the fourth section examines the role of developing countries in the debate over Article 4; and the fifth and final section outlines current challenges facing the success of the Montreal Protocol's implementation.

THE MONTREAL PROTOCOL

The Montreal Protocol is often held up as a shining example of global environmental cooperation. There are several reasons for this: first of all, it is generally considered to be a "successful" example of international cooperation both in terms of the high level of international participation in, and adherence to, the regime; and second, the problem that the Montreal Protocol was designed to address (ozone layer depletion) may in fact be solved by next century.[1]

The scientific and historical background to the 1987 Montreal Protocol is well documented and so does not warrant repetition here.[2] Prior to 1987, some industrialised countries had taken action at the national level in the late 1970s (the US, Canada, Norway and Sweden banned CFCs in non-essential aerosol uses). The first international agreement was the framework 1985 Vienna Convention, which contained non-specific obligations and requirements for more research and exchange of information. Progress up to that point was slow, owing to the continuing debates about the science surrounding CFC-caused ozone depletion and the increasing use of these profitable chemicals.

International attempts at regulation accelerated with the discovery of the ozone "hole" over the Antarctic in May 1985.[3] Under the auspices of UNEP, the Montreal Protocol on Substances that Deplete the Ozone Layer was signed by 24 parties, including eight developing countries, in September 1987. However, this agreement mandated only a gradual 50 percent reduction of a limited number of ozone depleting substances (ODS) by the main producers and consumers, and it exempted developing countries (known as Article 5 countries) from any control measures for ten years. The Protocol did, however, mandate trade restrictions with non-parties to the agreement in certain chemicals and products.

The Protocol has been subject to significant amendments in the years following 1987. In London in 1990, an interim trust fund was established for assisting developing countries with the transition to and development of non-ODS substances and technologies, controls on new substances were added, and a phase-out date of 2000 was set. Then, in Copenhagen in 1992, the phase-out schedule was again tightened and new chemicals (such as methyl bromide) were added. Additionally, the Multilateral Fund was established on a permanent basis and an Implementation Committee was created to deal with non-compliance issues. The Vienna meeting of 1995 again made adjustments to the control schedule and dealt with the crucial issue of non-compliance by several Eastern European states (including the

Russian Federation). The Eighth Meeting of the Parties in Costa Rica, held in November 1996, replenished the Multilateral Fund and continued the monitoring of non-compliance. International participation in the Montreal Protocol now stands at 162 parties; 115 countries have ratified the London Amendments and 66 have ratified the Copenhagen Amendments.[4]

TRADE RESTRICTIONS AND THE MONTREAL PROTOCOL

The Trade Provisions of the Montreal Protocol

As mentioned above, trade restrictions with non-parties were part of the control regime of the original Montreal Protocol. Before going on to discuss the origins of those measures, it would be appropriate to outline Article 4 in more detail. The restrictions were designed to cover both imports from and exports to non-parties of ODS in three categories: bulk ODS (e.g., CFCs themselves), products containing ODS (e.g., air conditioners), and products made with but not containing ODS (such as electronic components).

The *import* of controlled ODS in Annex A (the first eight substances) from non-parties was banned beginning in 1990 (one year after the entry into force of the Montreal Protocol). In 1993, one year after the London Amendments came into effect, imports of those ODS in Annex B (carbon tetrachloride, methyl chloroform and other CFCs) were banned, and Annex C, group II imports (hydrobromofluorocarbons, or HBFCs) were banned from June 1995, one year after the entry into force of the Copenhagen amendments. The imposition of trade restrictions for methyl bromide (Annex E) was considered at the Ninth Meeting of the Parties in September 1997.

Exports of ODS to non-parties were banned for Article 5 (developing) countries beginning in 1993, while other parties were permitted to export to non-parties, but after 1993 the quantities exported were to count as part of the exporting country's consumption (and would subsequently decline).[5] However, the London Amendments transcended this provision and mandated export bans for all parties; the schedule being January 1993 for Annex A substances, August 1993 for Annex B substances and June 1995 for Annex C, group II substances.

For those products *containing* controlled ODS, the original agreement required that a list of products containing those substances be elaborated within three years of the entry into force of the Protocol.[6] Parties that did not object to this list would then be required to ban imports of these products from non-parties within one year (exports of these products were not controlled). This list was adopted at the Third Meeting of the Parties in 1991 and came into force in 1992.[7] Further lists of products containing controlled substances (for those chemicals in Annexes B and C) have not been drawn up, because the excessive work entailed in doing so would be "disproportionate to the benefits".[8]

The final type of trade restriction was to be applied to *products made with but not containing* controlled substances. As this measure did not to relate to the trade of ODS *per se*, a large number of goods were potentially at issue (such as electronic components that had been cleaned with an ODS-based agent, or food "flash-frozen" by immersion in a CFC). The original agreement was to determine the feasibility of applying trade restrictions to such products (made with substances of Annex A) within five years of the entry into force of the Montreal Protocol. Consequently, parties addressed the feasibility question in 1993. It was determined, however, that there were too many difficulties in establishing what products were made with CFCs (i.e., it was either technically too difficult to establish if products were or were not made with CFCs, or prohibitively expensive to do so).[9] In light of these findings, and also considering the phase-out dates for various ODS, it was decided that additional trade restrictions would not act as an incentive to encourage non-parties to join the regime and therefore products made with but not containing controlled substances were declared not subject to Article 4, subject to reviews by the Technology and Economics Assessment Panel of the Protocol.[10]

A further issue with regard to Article 4 should be noted. That is, application of the trade restrictions is flexible both for non-parties and parties. For example, Article 4(8) of the Protocol allows the parties to deem non-parties as being "in compliance" with control measures (if appropriate data to that effect are submitted), and therefore exempt from the trade restrictions. Parties are subject also to interpretations of compliance that could effect their "trading status". For example, the Second Meeting of the Parties decided that any party not accepting the London Amendments on newly controlled substances would be considered a non-party with respect to those substances, and hence subject to trade restrictions (Twum-Barima and Campbell, 1994: 29).[11] Some observers have argued that this type of flexibility is indicative of a well-drafted

environmental agreement that focuses on a country's consistency with the substantive requirements of the accord, rather than its "party status", in the determination of compliance (Esty, 1994: 151).

The Origins of Article 4: Concerns about Markets and Competitive Advantage, or Environmental Enforcement Mechanism?

Having elaborated the details of Article 4, I now consider the origins of the trade restrictions of the Montreal Protocol. The early negotiations, and the decision to include trade restrictive measures, were dominated by the economic concerns of industrialized countries and their industries. It should be recalled that as the debate over CFCs and the ozone layer began, the economic value of these chemicals was immense. While global CFC production was concentrated mainly in the US and Western Europe, the US consumed most of their production domestically, whereas in the European Community (EC) more production went into exports. In 1974, the US accounted for 44 percent of global CFC production and the EC for 33 percent; by 1986, the figures were 28 % for the US and 42 % for the EC (Rowlands, 1995: 105).[12] In both cases, however, the monetary sums involved were huge – CFCs were a multi-billion-dollar industry (Gehring, 1994:197).[13]

Nevertheless, as the science implicating CFCs as the cause of ozone layer depletion solidified, American industry (Du Pont and the Alliance for a Responsible CFC Policy) in 1986 announced support for an international protocol that would "reasonably" limit global emissions, with Du Pont further announcing that CFC alternatives could be available in five years (Litfin, 1994: 92). US industry in particular was pressured by a domestic lawsuit filed by the Natural Resources Defense Council that would have unilaterally mandated restrictions and set them at a serious disadvantage in the world market.[14] Only an *international* agreement could create a level playing field for the international trade in CFCs and not give advantage to any particular country's industry. Furthermore, industry perception that regulation was forthcoming was likely to stimulate the search for alternatives (as the cost of the *status quo* – CFC use – was likely to rise) and Du Pont's research into CFC alternatives would leave them more competitively placed in a global market that would demand non-CFC products (Miller, 1995: 75).

European industry reacted cautiously to these developments. The feeling that the US was advocating controls on CFCs so that it could gain economic advantage with alternatives already developed in secret was still

accepted by some (Benedick, 1991: 123; Litfin, 1994: 93). Nevertheless, the Europeans also recognized the improving science and the movement towards international regulation. The UK's largest producer, ICI, also began to investigate alternatives – but it was much less optimistic that a full range of substitutes could be found within five years.

The formal negotiations for the Montreal Protocol began in December 1986, and two highly divergent positions were immediately apparent. The US favoured a virtual phase-out of CFCs (95 % reduction within ten years), while the EC proposed a production cap that would not have entailed any reductions on its part. While trade restrictive measures were first suggested formally by the US delegation at this negotiating session, it is apparent that they and other parties were aware of the trade implications of a potential agreement well before this point.[15] After all, substantial reductions and the potential elimination of a large number of profitable chemicals had serious international consequences for competitiveness. The question was how to reduce the production and consumption of these substances without surrendering a trade advantage to those who were not taking action while at the same time ensuring markets for alternatives. One way to do this would be an international agreement that restricted trade in the regulated chemicals and their products.

In the original US proposal, parties were to establish target years that would ban imports of controlled substances from non-parties (unless they were shown to be in compliance with the control measures), ban exports of technologies and direct investment in facilities that could produce controlled substances, and study the feasibility of restricting imports of products containing or produced with controlled substances from non-parties.[16] The rationale for restricting trade was both environmental and economic. First, the environmental goal of the Protocol – protecting the ozone layer by reducing CFC use – could be undermined if those industries producing CFCs could escape the control measures simply by changing location, continuing production and exporting the chemicals. Second, without trade restrictions, an industry not subject to the control measures could gain competitive advantage and market share over those that were. A continued supply of controlled ODS, furthermore, would depress the market for substitutes (thus restricting the development of alternatives).

If trade was restricted, however, non-parties would be unable to export those substances (and eventually, perhaps, products containing those substances and products made with them) to members of the agreement and enjoy the gains of being outside the control measures (the benefit of being a "free rider" would be decreased). Trade restrictions would thus act

as an incentive to join the Protocol in order to maintain access to either supplies or customers, as the case may be (and the greater the number of parties, the greater the protection of the ozone layer). This was particularly true for those developing countries that received their ODS supplies from the industrialised countries most involved in the regime.[17]

Predictably, the EC reacted with caution to the US proposal. Their counter-proposal was to study the feasibility of restrictions on imports of regulated ODS (and products containing or made with them) with non-parties.[18] Furthermore, as the decision whether to control production or consumption of CFCs had not yet been made (see below), the EC countries were especially concerned with protecting their lucrative export markets and were thus wary of trade measures. They suggested that further decisions on the trade question should await an opinion from the GATT as to the compatibility of such measures with the wider global trade rules.

A Sub-Group on Trade Issues was then established by the negotiators to examine these questions. It was believed that the inclusion of paragraph 8 of Article 4 (which suspends the trade restrictions for those non-parties deemed to be in compliance) would help to ensure conformity with the GATT by appearing to be "non-discriminatory" (Buxton, 1988: 11). The Sub-Group believed that the proposed trade measures could then be justified under GATT's Article XX ("General Exceptions"). The GATT Secretariat was presented with a copy of the proposed trade provisions, but made no comment (Twum-Barima and Campbell, 1994: 63).[19] Furthermore, a GATT legal expert agreed with the working group's findings that GATT Article XX(b) – allowing trade restrictive measures "necessary for the protection of human, animal or plant life or health" – would likely be compatible with the proposed Article 4; he also noted, however, that the final judgement would be left to the GATT contracting parties in the case of a dispute.[20]

The draft article on trade provisions submitted back to the negotiations by the Sub-Group was very similar to the original US proposal. It also suggested target years, after which parties would: ban imports of controlled substances from non-parties; restrict, ban or discourage the export of technologies for the production of controlled substances; abstain from providing financial aid for the same purpose; and study the feasibility of restricting imports of products made with but not containing controlled substances (Gehring, 1994: 245). However, this draft also strengthened the original American proposal by suggesting restrictions on imports of products containing controlled substances (rather than studying their feasibility). By September 1987, enough compromise had taken place

regarding the various issues on the table, including the use of trade restrictions, that the Montreal Protocol on Substances that Deplete the Ozone Layer was signed.[21]

Why Trade Provisions? And Why in This Form?

It is suggested here that concerns about international economic competitiveness and regime integrity were central during the debate on Article 4, and that these concerns influenced the decision to include trade restrictions as well as the form that the restrictions took. There are three related areas of importance that help to demonstrate this: the calculation of "consumption"; the need for trade restrictive measures; and the desire to influence future decisions regarding trade restrictions.

One of the more contentious issues during the formal negotiations for the Protocol that had commercial and trade implications was whether production or consumption of ODS should be controlled. The EC position – that production itself should be controlled – was defended on the basis of simplicity: consumers were many, but producers relatively few. However, the US and its allies realised that this would not only have the effect of granting the EC a virtual monopoly on exports (because its already proportionately larger share of the export market would be reinforced as smaller exporting nations would have to concentrate on domestic demand), but perhaps also discourage developing countries from joining the regime, because they would be prohibited from starting (or expanding) their own production *and* suffer supply problems as their markets grew (Twum-Barima and Campbell, 1994: 15; Litfin, 1994: 111; Benedick, 1991: 80).

A compromise was agreed, however, that satisfied both the EC countries' concerns with regard to their exports and the matter of making the treaty attractive to other states as well. That is, "consumption" (or "adjusted production") is defined as production plus imports minus exports. This eliminated the potential for any monopoly based on existing export positions, by allowing producing countries to slightly increase production (by 10 to 15 percent) for export to Protocol parties (such as developing countries with growing demand) without having to reduce domestic consumption; on the other hand, importing countries (that were party to the Protocol), faced with export cutbacks from one producer, could turn to another supplier of CFCs. Thus, the form that the trade measures took had to accommodate the realities of the international economics of production and trade in ODS. That is, some continued trade

within the framework of the Protocol was permitted (a ban on ODS trade among parties would have been out of the question), while those countries outside the Protocol were faced with increasingly restrictive trade measures (Benedick, 1991: 81; Litfin, 1994: 111).[22]

Another element that influenced the form of the trade measures was their use as an incentive to join the Protocol. The incentive was increased by creating significant differences between how parties and non-parties were treated in the regime. It is generally considered that the trade restrictions are an integral part of the "incentive structure" of the Montreal agreement; indeed, the US negotiator has referred to them as "critical" (Benedick, 1991; Szell, 1993).[23] That is, the trade restrictions added to the perception that it would be more advantageous to be a member of the Protocol than to remain outside the agreement. And while there was some debate and controversy regarding the inclusion of Article 4, this was generally related to larger controversies regarding calculations of production and phase-out schedules. Questions regarding the control measures, access to technology, and, as will be discussed below, funding, were more contentious in the course of the negotiations.[24]

Lastly, the possibility that the use of CFCs in the production methods of certain products could lead to trade restrictions on those products if they came from non-parties is also believed to have acted as a substantial incentive, especially for those countries with large export industries in areas such as electronic components (Stevens, 1994: 17; Brack, 1996a: 55). By including this possibility, there was incentive to join the Protocol not only to avoid such restrictions but also in order to influence future decisions about which products "made with but not containing" ODS would be subject to regulation. Such influence could be exercised only from within the regime, and therefore the threat of future trade action was another significant aspect in the design of Article 4.

DEVELOPING COUNTRIES: TRADE NEEDS AND OTHER NEEDS

The preceding sections outlined the origins and key developments regarding trade-related issues in the Montreal Protocol, with specific reference to Article 4. While developing countries had not been major participants before the negotiations leading up to the Protocol, they did become central actors in the post-Protocol period and their specific needs, with respect to the trade restrictions as well as to the general provisions of the agreement, were addressed.

In 1974, developing countries were responsible for only 2 percent of global CFC production (Rowlands, 1995: 105). It is perhaps not surprising, then, that developing countries did not conceive of themselves as being part of the problem; moreover, they also did not initially believe that ozone layer depletion would significantly affect them. Additionally, the use of CFC-based products – such as refrigerators – were perceived as part of the process of modernization, a process that developing countries were not prepared to forgo. Thus, Southern representatives argued in the early stages that because industrialized countries had largely caused the problem, industrialized countries were also responsible for dealing with it.

However, as the increasingly global nature of ozone layer depletion became more evident, and with industrialization proceeding briskly in a number of developing countries, countries in the South began to have a much more obvious interest in the ongoing international developments. In fact, by 1986, developing countries, while remaining insignificant producers of ODS, were consuming 15 % of CFCs globally – more than the USSR and Eastern Europe (Rowlands, 1995: 167). In the not-so-distant future, expanding CFC production and the possibility of very large domestic markets using CFC-based products (such as refrigerators) in developing countries could undermine any action taken by the industrialized countries, and so it was obvious that it would be environmentally desirable to bring these countries into the global regulatory framework. Moreover, these large emerging markets could also serve as recipients of new alternative technologies developed by Northern industry.

While the 1985 Vienna Convention made a vague reference to "taking account in particular the needs of the developing countries" (Article 4.2), it was the Montreal Protocol that began to address these needs. First, developing (Article 5) countries were given a ten-year grace period before needing to comply with the control measures of the Protocol, as long as their consumption of controlled ODS did not exceed 0.3 kg per capita. Second, access to technology and possibly finance was to be facilitated by industrialized (Article 2) countries. These features, along with Article 4, were intended to create incentives for developing countries to join the Montreal Protocol.

The response by the developing countries to the original agreement set the tone for the post-Protocol period. While a small group were initially supportive, others voiced their reservations loudly. Malaysia, for example, believed the Protocol to be "inequitable", and referred to it as "trade war by environmental decree" (Brack, 1996a: 57). Countries with large domestic markets, such as India and China, wondered why they should restrict their

own industry and rely on Northern suppliers, when little compensation seemed forthcoming. At the 1989 conference on "Saving the Ozone Layer", developing countries (especially China and India) took the initiative and called for the creation of an international fund to pay for research into alternatives and to assist the free transfer of technology.[25] The response of Northern countries (especially those that would be major donors in such a scheme, such as the US, UK, Germany, France and Japan) was caution and reluctance.[26]

The developing countries remained adamant, however, and just before the London Meeting in 1990, two of the most significant non-signatories, India and China, reaffirmed that they would not sign the Protocol without the guarantee of additional funds. The main impediment to an agreement on an international fund, the US, finally capitulated under domestic and international pressure. Du Pont, for example, had pointed out to senior US officials that unless developing countries had the resources to pay for substitute products, then industry could be denied vast new markets (Rowlands, 1995: 174). The Multilateral Fund was first set at a sum of US$160 million for three years, plus another $80 million if India and China were to join (which they subsequently did). While "free" technology transfer was not guaranteed, the provision of the Fund and a new clause (Article 5.5), making the implementation of control measures by Article 5 countries dependent on the financial cooperation of Article 2 countries, created enough incentive to facilitate widespread participation in the regime by developing countries.

Carrots and Sticks: An Effective Combination or Unpalatable Mix?

With the majority of developing countries now party to the Protocol, it seems that the trade restrictions and the multilateral fund were a successful combination of incentives. However, it is also essential to note that a clear distinction exists between those developing countries influenced by the trade restrictions and those not. With respect to the application or suspension of the trade measures, the Protocol has shown itself to be a forceful yet flexible agreement. In the cases of Burma, Korea and Israel, the desire to avoid trade restrictions – especially on products containing or made with restricted ODS – was instrumental in their accession to the Protocol (Rowlands, 1995: 183; Brack, 1996a: 55-7; Collins, 1992). The agreement has also shown flexibility in cases where the strict application of trade measures might undermine the greater goal of protecting the

ozone layer. For example, Parties decided in 1992 that Colombia, a non-party, had submitted information regarding its control measures and was in compliance with the terms of the Protocol, and therefore not subject to Article 4.[27] In 1994, Malta, Jordan, Poland and Turkey, all non-parties at a certain point, were also given exemptions from Article 4 until they signed the Protocol because they were submitting data that indicated compliance with control measures.

The number of non-parties is now very small, and the amount of (current and potential) ODS consumption they represent is also relatively small. Furthermore, there is no indication that they either have remained outside the Protocol to evade control measures or pose any significant threat to the ozone layer (Brack, 1996a: 54). While it is difficult to disentangle the influence of the trade restrictions from other factors – such as the grace period allowed for consumption, the Multilateral Fund and a desire to protect the ozone layer – that encouraged developing country participation, it does seem clear that the need to maintain access to supplies or to keep access to markets for products by becoming a party to the Protocol was strong, especially in those countries with small domestic markets, production capacity and a need to export CFC-based products. However, the threat of trade restrictions held little weight for countries such as China or India that had large production capacities for CFCs and domestic markets that could consume products made with these chemicals. In those cases, access to financial resources, technology and alternative substances were arguably more important.

FUTURE CHALLENGES

International efforts to protect the ozone layer are far from over. Indeed, with developing countries about to implement their first binding commitments and concerns about smuggling and non-compliance by other parties, many challenges lie ahead.

First, on 1 July 1999, Article 5 countries must freeze their consumption of Annex A CFCs at their average consumption levels during 1995-7, and stop consumption completely by 2010. This will be followed by further restrictions on the consumption of halons in 2002 and Annex B ODS in 2003. These are the first required actions taken by developing countries under the Montreal Protocol. During the ten-year grace period, however, ODS consumption has increased in many developing countries.

Consumption of CFCs in Thailand, for example, has increased from 2,000 tonnes in 1986 to about 10,000 tonnes in 1991, and demand for ODS in Indonesia is predicted to increase by a factor of ten by 2010.[28] This is not to say that phase-outs of ODS have not already begun in developing countries; as of 31 May 1996, investment projects by the Multilateral Fund have phased out 9,842 tonnes of ODS in a variety of Article 5 countries.[29] The challenge will be to ensure that both the resources and the technology for ODS reduction are sufficient in order for developing countries to fully implement their commitments. The Multilateral Fund was replenished at the 1996 Meeting of the Parties, but whereas China and the G-77 had sought US$800 million for the period 1997-9, the final figure was $540 million.[30]

Second, it is not only developing countries that face the challenge of implementing their commitments. Industrialized countries still need to eliminate HCFCs and methyl bromide, and there is concern that one class of non-ozone-depleting replacement chemicals – hydrofluorocarbons – contribute to global warming. There is also the problem of non-compliance in several East European countries. The World Bank, for example, is planning to spend US$40 million in Russia alone to assist the elimination of CFC production by 2000.[31]

Third, the existence of an illegal trade in ODS threatens to undermine the transition to alternatives. It is estimated that the volume of this trade is anywhere between 6000 and 10,000 tonnes per year in Europe alone, with potential sources being Russia and India (Brack, 1996b). For example, EU authorities recently cracked a multibillion dollar smuggling ring that brought in CFC products from China by labelling them as another type of cooling agent (Barber, 1997). While the Montreal Protocol has taken steps to establish tracking and verification systems for CFC imports, the longer that illegal trade persists, the longer it will take for the ozone layer to recover.

Finally, debate regarding control measures and trade restrictions for methyl bromide, and products made with but not containing methyl bromide, played a central role at the Ninth Meeting of the Parties in 1997. Some developing countries, which use methyl bromide to fumigate agricultural products, have already proven reluctant to consider controls on the use of this ODS, but will be faced with proposals from some industrialized countries to restrict trade with non-parties.[32] Once again, the commitment of adequate resources and technology will be crucial to meeting the needs of developing countries.

It is clear that efforts to protect the ozone layer have reached a new and critical stage. Moreover, it is not just the ozone layer that is at issue, as the

international community confronts challenges such as the implementation of developing country commitments and illegal CFC trade: those involved in the negotiation of other international environmental agreements will watch closely how the institutions and parties of the Montreal Protocol respond, and perhaps lessons will be learned for other global environmental regimes. For example, the range of products at issue should the Kyoto Protocol to the UN Framework Convention on Climate Change ever decide to impose trade restrictions on products produced with large amounts of fossil fuel is enormous. The experience of the Montreal Protocol suggests that trade restrictions should be used in combination with other (positive) incentives and that a flexible approach should be taken when considering application of such measures.

However, there is room for optimism that the Montreal Protocol will continue to succeed. As the case of developing countries and Article 4 shows, the Protocol has been able to adapt to the differing needs of its many and varied parties. This flexibility will be key to meeting the challenges of the Protocol's second decade.

Notes

1. While the rate of chlorofluorocarbon (CFC) build-up in the stratosphere has slowed significantly, the atmospheric presence of some CFC substitutes is increasing due to the Protocol, and full compliance with the Copenhagen amendments will reduce chlorine concentrations to a level below critical (i.e., to normal pre-ozone-hole levels) by the middle of next century, the final outcome is not yet assured (Bojkov, 1995). Many problems, relating to compliance with commitments and other issues, remain (Greene, 1995; Krueger and Rowlands, 1996).
2. For a history of the early ozone controversies, see Dotto and Schiff, 1978. The activities of the 1980s are covered by Roan, 1989. On developments since the signing of the Montreal Protocol see Litfin, 1994; Gehring, 1994; and Rowlands, 1995. The account by the American negotiator is found in Benedick, 1991.
3. The causal link proving that CFCs were in fact responsible for ozone depletion was not agreed to until March 1988, however, suggesting that the early, tentative steps of the Montreal Protocol of 1987 were taken on a precautionary basis.
4. "Status of Ratification", *OzonAction*, no. 23, July 1997: 10.
5. "Consumption" is discussed below.
6. The reason for allowing 3 years before banning the trade in products containing ODS with non-parties was because "it was felt that 3-4 years would be needed for many states to put into place the required laws to control imports and exports of these products and to collect the required data" (Buxton, 1988: 10).
7. The list included six categories of products: auto and truck air conditioning units, domestic and commercial refrigeration and air conditioning/heat pump equipment, aerosol products (except those with medical exemption such as

metered-dose inhalers), portable fire extinguishers, insulation boards, panel and pipe covers, and pre-polymers. Singapore initially objected to several of the listed products, but subsequently withdrew that objection (Brack, 1996a: 47).

8. Decision VI/12 of the Sixth Meeting of the Parties. For example, the import ban for products containing carbon tetrachloride and methyl chloroform was to have come into effect in August 1996, while the chemicals themselves were to be phased out by January 1996; since all the significant producers of these chemicals were involved, it was unlikely that many products containing these substances would have been available when the substances themselves had been phased out seven months earlier.
9. Report of the Fifth Meeting of the Parties, UNEP/OzL.Pro.5/12, 8; also, van Slooten, 1994.
10. The only significant remaining controlled substance with trade implications is methyl bromide (MB). Exporters of agricultural products based in developing countries, who treat their products with MB, will be reluctant to see any trade restrictions imposed. See below, under "Future Challenges".
11. This clause was added as Article 4(9).
12. 1974 figures are for CFCs 11 and 12 only, whereas the figures for 1986 are for all CFCs.
13. Brenton suggests that the annual value of CFC production was US$3–5 billion, and US$300-400 billion for "user" industries such as fridge manufacturers (Brenton, 1994: 145). British exports in 1975 were valued at £70 million (Rowlands, 1995: 106); and between 1974 and 1980, DuPont spent over US$15 million simply researching alternatives (Litfin, 1994: 70).
14. The goal of the Alliance for a Responsible CFC Policy throughout this period was "to prevent any unproductive, harmful, unwarranted unilateral domestic regulatory program that would injure US industry to the benefit of our international competition" (quoted in Goodman, 1992). Litfin recounts that the executive director of the Alliance feared that the US would "go its own way and commit industrial suicide" (Litfin, 1994: 93).
15. A Canadian proposal submitted three months prior to start of formal negotiations suggested that: "Any global control strategy must avoid, to the degree possible, interfering with the international flow of goods and services" (Buxton et al., 1986: 2-4, 7).
16. See US proposal, UNEP/WG.151/L.2, December 1986.
17. As the Head of the Austrian delegation remarked at the time: "Unless you join, you won't get those substances you need to meet your basic needs ... [and because technology transfers are prohibited to non-Parties,] countries not signing the Protocol will be unable to produce their own" (quoted in Capretta, 1988).
18. EC Proposal, UNEP/WG.151/L.5. There were of course internal divisions within the EC as well. The Netherlands and Denmark were supportive of the proposed trade measures, while Germany, the UK and France, all having ODS-producing industries, were initially against (interview with member of UK delegation).
19. Duncan Brack argues that the Working Group had in mind the precedent of the Convention on International Trade in Endangered Species (CITES), which the GATT had not objected to; however, by not passing judgement on the acceptability of the proposed trade measures, the Secretariat was not committing itself one way or the other should a GATT Contracting Party raise an objection at a later date

(Brack, 1996a: 68). See also the Report of the Ad Hoc Working Group on the Work of Its Second Session, UNEP/WG.167/2, section II, 4 March 1987.

20. Report of the Ad Hoc Working Group on the Work of its Third Session, UNEP/WG.172/2, section C, 8 May 1987.
21. The final form of the trade measures is outlined above. The only significant difference between the final draft and that proposed by the sub-group was the inclusion of an export ban meant to encourage non-parties who needed to maintain access to supplies of ODS to sign the agreement. The specific concerns of developing countries with respect to trade and access to supplies is examined in the next section.
22. Recall that Article 2 countries (i.e., OECD producers) were permitted to export to non-parties as well as to parties until January 1993 (after which time those quantities would be calculated as part of their "consumption"). The London Amendments to Article 4, however, overrode this provision and mandated export bans for all parties from January 1993 so as to provide incentive to those non-party importers to then join the Protocol to maintain access to suppliers.
23. On the incentive structure more generally, see Capretta, 1988.
24. Interview with member of UK delegation. In the US case (recalling the concern regarding the proposed unilateral action), both industry and environmental groups were supportive of the trade provisions pretty much from the start. EC delegations, on the other hand, were still sensitive to the position of their industry on this question (interview with a member of the US EPA).
25. Litfin argues that increased attendance by developing countries at this conference can at least in part be attributed to the motivations of industry. That is, ICI realised that access to developing country markets was crucial and of course preferred them to be "exportable" (i.e. party to the Protocol). The British company then paid the travel expenses for some delegates from developing countries to attend this conference (Litfin, 1994: 211).
26. The US was especially reluctant to take new steps in the creation of an international fund, fearing a precedent for other international negotiations on issues such as climate change (Litfin, 1994: 143-7).
27. See Decision IV/17B of the Fourth Meeting of the Parties, UNEP/OzL.Pro.4/15.
28. "Curtailing Ozone Depletion: Developing Countries Hold the Key to Success", *Stockholm Environment Institute Bulletin*, vol 3, no. 1–2, October 1996: 1–2.
29. "Completed Investment Projects," OzonAction, no. 19, July 1996: 9. See also, Hope, 1996.
30. *OzonAction*, No. 21, January 1997.
31. See Report of the Implementation Committee Under the Non-Compliance Procedure for the Montreal Protocol, UNEP/OzL.Pro/ImpCom/17/3, 16 April 1997, p. 6.
32. See, for example, the US proposal contained in UNEP/OzL.Pro/WG.1/15/2/Add. 2.

10 Lessons from the Mexican Environmental Experience: First Results from NAFTA

Claudia Schatan

The Mexican case is unique, in that Mexico is the only developing country that has entered a free trade agreement that incorporates an environmental clause. Furthermore, NAFTA was very controversial in terms of its ecological impact. The optimistic approach considered NAFTA a potential source of increased per capita income, especially in Mexico: it would naturally improve environmental protection, access to cleaner technology would be easier, and there would be a tendency to upgrade standards, so that eventually the rules relating to conservation in Mexico would converge with those prevalent in the United States and Canada (Provencio, 1994). More pessimistic views held that a higher level of economic activity in Mexico, accompanied by very lax environmental law enforcement, would cause greater depletion of natural resources and worsen pollution. It was also envisaged that increased trade would give way to greater movement of hazardous materials between the parties, that lower environmental standards in Mexico would attract polluting industries in the US and Canada towards Mexico, and that the harmonization of standards would pull Canadian and US levels down to an inferior common denominator dictated by the less demanding nature of Mexican rules. The interaction of trade and the environment in NAFTA was also a controversial topic. Introducing the environment issue in NAFTA was seen by some as potentially damaging for free trade, because it could possibly activate protectionist instruments. Others viewed the efforts towards environmental upgrading as complementary, and even as a necessary step towards heightening competitiveness in the context of free trade.

Despite these opposing views, political manoeuvring as well as genuine environmental concern built enough pressure for the environmental issue to be included, first in rather general and scattered terms in the core agreement and then in a specific environmental agreement. The Environmental Side-Agreement (ESA) was one of the most sensitive issues in the NAFTA negotiations, even though it is not part of the main

body of the Agreement. Most of the controversy centred on Mexico, as Canada and the United States already had their own bilateral environmental agreement. Therefore, the principal issue revolved around whether including Mexico in NAFTA would improve or worsen its already poor environmental record, and, if it worsened it, whether there would be greater spill-overs that could cause damage to its neighbours. The outcome was a result of heated negotiations between governments, and with non-governmental organizations (NGOs), labour and business sectors in each country, but especially the United States.

The way Mexico negotiated the environmental issues in NAFTA, as well as the initiatives it has undertaken to adapt to the new agreement, is a useful experience for other developing countries. With a shortage of funds, enormous environmental problems and a modern and sophisticated environmental law, it must make a special effort to adapt its institutions, rules and supervision to achieve effective enforcement. Whether NAFTA and other agreements signed with the United States will help Mexico to improve its backward environmental conditions is also discussed in this chapter.

NAFTA AND THE ENVIRONMENT: PRECEDENTS

Discussions between the United States and Mexico regarding environmental issues substantially predate the NAFTA. Even more than a century ago, deteriorating environmental conditions at the United States–Mexico border were a point of controversy. These worsened rapidly from the beginning of the 1980s because of sewage problems in Tijuana, inadequate waste disposal from the maquiladora, and the copper-smelting activities in Sonora and Arizona, all of which became pressing problems at that time. The result was new agreements between Mexico and the United States. The Bilateral Agreement on Cooperation for the Protection and Improvement of the Border Area Environment was signed in 1983 and later expanded in 1986. In 1992, the Mexican–United States Integrated Border Environmental Plan was issued, but the financial difficulties it faced considerably hindered its effective implementation (Gilbreath and Tonra, 1994). In more general terms, interaction on environmental matters between Mexico and the US increased after President Bush launched an Action Plan on 1 May 1991. The purpose of this initiative was to gain greater support from environmental groups for

NAFTA, which was crucial to obtaining "fast-track" authority from Congress. President Bush's initiative was, therefore, a result of the deep concern of conservationist organizations in the US over the environmental impact of NAFTA, as well as the great support gained by such groups in public opinion and political constituencies.

US environmental NGOs became increasingly active, and demanded that the government prepare an Environmental Impact Statement for NAFTA based on the United States National Environmental Policy Act of 1969. The fact that the government refused to do so, and produced only a short "Environmental Review" on the Agreement, prompted three environmental groups to start a judicial claim for the United States to comply with the National Environmental Policy Act in NAFTA. Although these demands had no concrete consequences, they generated fertile ground for further discussion and more serious studies on the issues. Subsequently, the Clinton administration presented a carefully elaborated "Report on Environment Issues" (Housman, 1994).

Thus, while, prior to NAFTA, United States–Mexico environmental agreements had limited impact on public opinion, the prospect of signing up to the NAFTA gave rise to great controversy between environmentalists and free traders, especially in the United States. Controversies were milder in Canada and almost non-existent in Mexico. In September 1992, the United States government proposed the creation of a trilateral commission on environment to push forward the trade agreement forward, which was supported by both Canada and Mexico. This proposal had the desired result of eventually gaining support for NAFTA from several environmental NGOs in the United States, including the National Wildlife Federation, the largest conservation organization.

Later, President Clinton conditioned support for NAFTA on the approval of a supplementary agreement on environment and labour. Mexico and Canada were not fully convinced by such a proposal, and were particularly opposed to the weight placed on trade sanctions by the United States as a way of ensuring enforcement of domestic environmental laws. In the end, a milder version was accepted by the three parties. The negotiations took place between May and August, 1993. However, the initial proposal faced opposition not only from Mexico and Canada but also from groups within the United States. For example, business was opposed to the emphasis placed on sanctions, which implied an approach that relied on conflict rather than cooperation. Environmental groups, on the other hand, considered the provisions on enforcement and sanctions to be too mild.

Therefore, the NAFTA environment negotiations, especially in the United States, typically developed in a "two-level game" field. Domestic groups put pressure on the government to adopt environmental policies in NAFTA consistent with their own preferences, and politicians tried to strengthen their positions in their constituencies by doing precisely this. At the same time, at the international level, the government had to reconcile domestic pressures with the country's international interests (Putnam, 1988).

Finally, on 12 August 1993, the North American Cooperation Agreement on the Environment (the Environment Side-Agreement or ESA) was approved. Although the harmonization of trade and the environment in the Agreement may be considered limited, it went much further than the "free traders" expected, and hence was praised by certain "moderate" environmentalists. Nevertheless, it was severely criticised by others (see Gallardo, 1993).

THE OUTCOME OF THE NEGOTIATIONS: THE "GREEN" ASPECTS OF NAFTA

From the environmental perspective, NAFTA is peculiar in many respects, starting with the fact that it was introduced in two stages. The result is that to a certain extent the core or main Agreement is written in "green language", because initially the environmental problem was to be taken into account without being accorded a special space of its own. President Clinton's commitment to reach the side-agreements after the NAFTA was concluded produced a specific agreement on the environment, which did not displace the first. Therefore, an analysis of environmental issues in NAFTA has to trace the issue throughout the negotiation process.

General Intentions

The Preamble of NAFTA explicitly reveals a concern with the environment. Among the purposes and intentions of the agreement expressed in it, at least three relate to the environment: to pursue free trade in a manner consistent with the protection and preservation of the environment; to promote sustainable growth; and to strengthen environmental laws and their enforcement. However, the "green" language of the Preamble is somewhat compromised by the fact that the Objectives

of the Agreement (Article 102) do not include any reference to environmental issues. This is the first point of ambivalence in the NAFTA on the environmental topic.

The objectives established in the ESA, on the other hand, include the commitment to improve environmental protection through cooperation in environmental and economic policies. It also considers the improvement of rules and laws that regulate environmental practices, as well as enforcement, and there is an explicit commitment to avoid trade distortions and the creation of new barriers to trade in the form of disguised protectionism.

Standards

The agreement undertakes the responsibility of promoting an upward harmonization of environmental standards. Notwithstanding the harmonization effort, however, each country may adopt the standards it considers most appropriate according to the level of protection it desires, even if these standards are stricter than those established internationally (Articles 904.2 and 713.3). This is an explicit recognition of the diversity among countries and, therefore, gives no authority to any country to enforce domestic environmental standards beyond its geographical border. Agreement on this problem is very important, given the acute tensions faced in the past among some NAFTA members, the tuna-dolphin case between the United States and Mexico being one of the most important (see Tussie and Vásquez in this volume).

Therefore, member countries are freer than in the GATT to establish their own standards and, at the same time, to enforce them on imports. If a country considers an imported product to be dangerous to the environment, health or security, it may refuse access on the basis of scientific principles, whereas GATT requires scientific proof for an import prohibition of this sort. A non-discriminatory import ban can be imposed temporarily while the scientific information is gathered. In this way, parties can use technical regulations based on the "best information available" and can change them once enough information has been gathered.

Regarding sanitary and phytosanitary measures (SPMs), the country may "apply any sanitary or phytosanitary measure necessary for the protection of human, animal or plant life or health in its territory, including a measure more stringent than an international standard" (Article 712.1). The application of the standard is permitted "only to the extent necessary to achieve its appropriate level of protection", hence

allowing more flexible application than in the WTO, which demands those measures to be "least trade restrictive". Still, this is a controversial part of NAFTA, because some environmentalists believe that GATT jurisprudence should take precedence over the NAFTA rules, thereby demanding the "least trade restrictive" concept to be applied. This could limit the freer application of stricter standards by NAFTA members (Housman, 1994).

Other standard-related measures (SRMs), which rule technical barriers to trade, set conditions similar to those ruling SPMs, though less stringent. Instead of only admitting standards that are "necessary" for "safety, the protection of human, animal or plant life or health in its territory", as in the SPMs chapter, the SRMs chapter allows measures that are only "related" to such purpose, allowing the application of a wider range of measures (Johnson and Beaulieu, 1996).

Investment

NAFTA intends to avoid competition through relaxing "domestic health, safety, or environmental measures" (Article 114 of the ESA). Should a party consider that another has used this illegitimate way of expanding investment then it may consult with the other party so as to avoid that practice. Furthermore, the countries can demand that foreign investors comply with certain technological specifications required by domestic environmental standards (Article 1106.2). This provision – by which violating environmental standards becomes unacceptable as a means to attract investment – is one of the first of its kind in international trade agreements. The investment chapter of NAFTA, nevertheless, has some pitfalls from the environment point of view, and these are discussed later.

Dispute Settlement

The first kind of dispute on environmental issues involves protests against sanitary and phytosanitary measures and standard-related measures applied by a party, either because they are incompatible with such party's obligations under NAFTA (mainly because it unjustifiably limits trade in some way), or because the measures cancel or impair the benefits the contending Party had reasonably expected to obtain under NAFTA. The disputes arising in this field aim at avoiding trade protectionism through

measures intended to protect the environment (as well as health, security etc.). Settlements in favour of the environment would be those that allow legitimate environmental protection measures to survive the dispute.

The second type of dispute settlement procedure is contained in the ESA, and deals with complaints against a party that show a "persistent pattern of failure to effectively enforce its environmental law" (Article 22). In this respect, the ESA tackles the ecological issue directly, in contrast with the standards chapters. Trade sanctions are considered, but the usual penalty is in the form of a fine, non-payment of which leads to the temporary cancellation of NAFTA benefits.

Dispute Settlement in NAFTA

In general, disputes that occur within NAFTA can be settled under either NAFTA or GATT, depending on the complaining party's preference (Article 2005). Nevertheless, when the conflict regards sanitary and phytosanitary measures, standard-related measures that concern the environment, or the application of an international environmental treaty, the party facing the charge may choose NAFTA as the only instance for the dispute to be solved. This is important, according to some authors, because NAFTA's environment-related disciplines and its dispute settlement mechanisms seem to be more environmentally friendly than GATT procedures (Johnson and Beaulieu, 1996).

An important difference between NAFTA and the WTO dispute settlement mechanism, which may favour environmental protection measures, is that while the burden of the proof lies ultimately in the hands of the defending party under WTO dispute settlement procedures, in NAFTA this responsibility lies with the complaining party. That is, in NAFTA the party that may suffer a curtailment of its exports as a result of the complaint it faces has to demonstrate that it does not violate certain standards of the importing country, and that, therefore, the import ban or other restrictive measures imposed under GATT Article XX (which allows for exceptions to free trade) by the importing country are unjustified.

Dispute Settlement in the Side-Agreement

Notwithstanding the fact that NAFTA is more sensitive to environmental issues than GATT, cooperation is the dominant spirit of its dispute settlement mechanism established in the ESA. A sanction is a measure of last resort, to be used only if member countries persistently avoid

enforcing their environmental legislation. When a problem of this sort arises, the first step is consultation among the parties. If this does not work then the North American Commission for Environmental Cooperation becomes active. The latter is empowered to summon technical advisers, mediate, and make recommendations for the parties to find a mutually satisfactory solution to the dispute. Should these attempts fail then the Council may set up an arbitration panel, which will prepare a final report. If this report finds that there has been a persistent infringement, there is still a chance for the two parties to undertake an agreed plan of action. If the obligations derived from this plan are not fulfilled, then a fine is levied on the infringing party, determined at the panel's discretion, within established limits. Finally, should this fine not be paid then trade sanctions to restrict imports from the offending country will be implemented, but only up to the amount of the fine. It is unlikely that many demands will end up in such sanctions, given the number of prior steps to seek a solution and the fact that these could take several years.

Cooperation and Institution-building

The ESA included the creation of a unique type of institution to promote cooperation on environmental issues: the North American Commission for Environmental Cooperation, headed by an Environment Ministers Council, which in turn is supported by a Secretariat that provides the necessary technical and administrative assistance. The Council has the responsibility of helping to avoid environmental disputes in NAFTA, as well as making technical recommendations for gathering information, preventing pollution, and elaborating and improving environmental laws and rules. It is also the responsibility of the Council to resolve controversies that may arise from the interpretation and application of the Agreement (Alanís, 1995). The task of the Commission is also supported by the Joint Public Advisory Committee, composed of 15 experts on environmental issues (5 from each country), which meet every time there is an ordinary meeting of the Ministers Council.

It is interesting to note that the institutional framework described above is intended to support cooperation among the parties on environmental protection, beyond the realm of trade. Although the dispute settlement mechanism is limited to trade-related environmental issues, the cooperation aspect of the agreement is active in many more fields.

The Link with International Environmental Agreements

One of the most important aspects of NAFTA is that the international agreements on the environment recognized by the three parties take precedence over national rules. Were there to be an incompatibility between NAFTA and an international agreement then the latter would prevail. The NAFTA members agreed to subscribe the following international agreements: the Montreal Protocol of 1987, on CFC control; the Basel Convention of 1989, on transportation of dangerous substances; and the Convention on International Trade of Endangered Wild Species (CITES) of 1973. NAFTA also recognizes the bilateral agreements between Canada and the United States (on transboundary movement of hazardous substances) and between Mexico and the US on Cooperation for the Protection and Improvement of the Environment in the Border (1983). The list of international agreements that NAFTA members are committed to respect can be broadened in the future, with written consensus among all three.

ENVIRONMENT PROTECTION ACTIVITIES DURING THE FIRST TWO YEARS OF NAFTA

To date, the most relevant aspects of NAFTA from the environmental perspective are, on one hand, the cooperation efforts (limited only by financial restrictions) and, on the other, the very limited environmental demands raised so far, which potentially lead to sanctions. The unfolding of the Commission's acts are particularly relevant for setting precedents, given the numerous ambiguities and gaps of the ESA.

The initiatives for trilateral cooperation on environmental issues range from an agreement to draw up an Action Plan to eliminate hazardous substances – starting with a list of 12 organic bio-accumulative chemicals (centred in PVCs), 1 heavy metal (mercury), and 2 pesticides (DDT and chlordane) – to the creation of a trilateral inventory of emissions and analysis of the way in which they are transferred. The first petition under the ESA was filed against the United States government in July 1995. The complaint was related to provisions attached to a new law, by which the United States Fish and Wildlife Service was forbidden to make "final determinations that species or critical habitat are endangered for the remainder of fiscal year 1995. It also rescinds

$1.5 million from the Fish and Wildlife budget for enforcement purposes" (Inside NAFTA, 9 August 1995).

The second complaint charged the United States government with violating the ESA by means of a decree that prevented Congress from suspending all laws for eighteen months, including the Endangered Species Act, which prohibited wood-clearing operations in the United States Pacific Northwest. This would open the way for clearing woods damaged by fire, threatening some endangered species, especially the Douglas Firs owl in Warner Creek, Oregon. It was also argued that there would be an incentive to set fire to woods, and that the enforcement of existing environmental standards would be made impossible, transgressing the ESA of the NAFTA (Inside US Trade, 1 September 1995). Both complaints were rejected by the Commission, because they questioned the laws themselves and not enforcement. From these experiences, it seems that, if domestic environment laws change, the Commission considers itself incompetent to judge them, even if by not doing so there is a risk of lowering standards.

The first case against the Mexican government reported the death of about 20,000–40,000 migrant ducks and other birds (belonging to 21 species), which died in the Silva Ditch in Guanajuato, Mexico, between 1994 and 1995. The Commission allowed the investigation and appointed a panel of nine experts (three from each country) to study the case. The main task of the panel was to identify the causes of the deaths, to make recommendations to avoid such problem in the future, to prepare a response in case the situation arise again in the future, and to identify areas for cooperation among countries in this respect. The Commission presented its report and recommendations in October 1995. Another claim was made against the Mexican government in February 1996 for authorising the construction of a pier in Cozumel Island, Quintana Roo, which could endanger, directly or indirectly, a coral reef of 25,000 square metres. The Commission accepted the case and is following the regular procedures.

THE NAFTA RESIDUAL AGENDA ON ENVIRONMENT

The way the environment was approached through NAFTA and the ESA left several unsolved problems and undefined aspects, because either there are loopholes or transparency is lacking. The origins of these shortcomings are the limited international experience in this terrain, the complicated negotiations and their chronology, as well as the multiple influences on the negotiations.

Tension Between Trade and Environment Considerations

The international body of treaties on the environment are insufficient and fragmented. In addition, the lack of a supranational organization responsible for global environmental conditions has understandably led conservationist policy to rely on trade mechanisms for enforcement. At the same time, there is a generalised feeling that this is not a good solution, merely an expedient.

From a trade perspective, the main concern about the ESA is the distortion that may arise in international markets as a result of trade sanctions, hence contradicting the spirit of trade liberalization. It has been argued also that sanctions may distort trade further, because they do not hit the right target. Though the purpose of the sanction is to put pressure on governments that fail to implement the law, the end result may be trade sanctions to exporters that are not even involved in the pollution problems (Winham, 1994).

The final outcome of the negotiations put special emphasis on cooperation, rather than sanctions, but the tension between these two mechanisms continues. Although very few demands have been raised since the Commission was set up, and no sanctions have been imposed, the concern is still relevant. For example, the United States Congress at the end of 1995 threatened to reject "fast-track" for the incorporation of new countries into NAFTA, unless sanctions were removed from the Side-Agreements.

From the environmentalists' viewpoint, a great range of problems are raised. The extent of their validity often depends on the interpretation of the Agreement, which, as mentioned, is not always clear. First, the scope of the ESA is seen as too narrow, because demands can be made against a Party only in cases where a trade link exists. Ineffective enforcement of environmental law may be brought forward, if it involves

> workplace, firms, companies or sectors that produce goods or provides services: (a) traded between the territories of the Parties; or (b) that compete, in the territory of the Party complained against, with goods or services produced or provided by persons of another Party. (Article 24.1).

Other environmental problems stay out of the realm of NAFTA environment side-agreement, so that however much production for the domestic market damages the environment, it is not subject to sanctions.

The foregoing is true as far as disputes are concerned. Nevertheless, the competence of the Commission on the cooperation side is wider, since it is supposed to develop collaboration initiatives on many issues, widening the scope of improvement and surveillance beyond trade issues (see Article 10 of the ESA).

Second, natural resources and other aspects related to conservation, such as agricultural methods, have been left aside, while concentrating on pollution control. Hence, the dispute settlement regime cannot deal with unsustainable natural resource management, leaving some of the most pressing environmental problems apparently unattended. There is, however, an ambiguity on this issue, which leaves an open window for natural resources problems to be tackled indirectly. In fact, in the definition of environmental law, "the protection of wild flora and fauna, including endangered species, their habitat, and specially protected natural areas" (Article 45.2) is required, so that natural resource issues can be raised if, for example, there is a connection with endangered species (Johnson and Beaulieu, 1996). This was clearly the case with the demand brought up against the new legal provisions on logging in the United States mentioned above, in which the main argument of the claim presented before the Commission was the endangerment of a species of owl.

Third, no specific measure is established to deal with situations in which a country lowers its environmental standards (and hence costs) in order to gain competitiveness. Furthermore, lowering standards to attract foreign investment, although explicitly forbidden in the Agreement, does not incur sanctions, and solutions have to be worked out only through consultation among the parties involved.

Fourth, some principles accepted in many countries as well as international agreements do not seem to be included in the ESA, such as the "polluter pays principle". The fine that may be levied on the party at fault is not considered a fulfilment of this principle, because it is not calculated on the basis of the cost involved in the environmental damage. Besides, the monetary penalty can be softened considerably on the basis of financial constraints, among other reasons, which would justify the lack of enforcement by the offending country. Finally, the fine is paid not by the polluting industry but by the government, therefore it is not the polluting agent who suffers financially.

The alternative route to the "polluter pays principle" followed by the Agreement – that is, the requirement for the countries to "effectively enforce" their environmental law – is considered weak. The agreement specifies only when a country cannot be accused of failing to enforce its

environmental law through two examples, but does not give very specific guidelines for the dispute settlement panel in deciding when a party is at fault in such enforcement (Johnson and Beaulieu, 1996).

Pending Matters

Besides the particular points raised by free traders and environmentalists, there are other shortcomings both in NAFTA and the ESA. Perhaps the most important is related to the application of standards. In recognition of the differences among countries – regarding endowment of natural resources, pollution absorption capacity, methods to produce the same goods, financial possibilities of acquiring cleaner technologies, and so on – NAFTA asserts that standards should concern products but not processes. A "standard", nevertheless, is defined as "a document approved by a recognized institution", which provides

> rules, guidelines or characteristics for goods or related processes and production methods, or for services or related operating methods, for which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a good, process or production or operating method. (Article 915)

The side-agreement does not deal with PPMs, although, as with many other environmental matters, the Commission can offer recommendations. In this case, the Commission may advise on "the environmental implications of goods throughout their life cycles" (Article 2.m). These aspects, therefore, are treated ambiguously. One can foresee trade restrictions based on polluting production processes being used in the future. This is a possibility, precisely because international concerns have moved toward the complete product cycle and not only the end result (Stevens, 1993).

Finally, because the NAFTA and the Side-Agreements do not deal explicitly with PPMs, they do not seem to put NAFTA members, and especially Mexico, into the dynamic track of international "green" pressures and concerns. Issues that are climbing quickly to first place in world discussion are left aside. Therefore, the efforts that Mexico may undertake to adequately comply with NAFTA requirements seem insufficient to make it environmentally "competitive". This suggests that

the NAFTA and the Side-Agreements, although having made a breakthrough – as compared with the Uruguay Round and the WTO – still remain incomplete.

ADJUSTING TO NAFTA: LEGAL, INSTITUTIONAL AND POLICY CHANGES

The main legal tool for environmental protection in Mexico is the 1988 Environmental Law (Ley General de Equilibrio Ecológico y la Protección al Ambiente), which is considered to be very modern in many ways. For example, it defines the responsibility of the government (including its different public entities), decentralises governmental tasks, and includes preventive measures, environmental impact evaluation, and mechanisms of social participation.

Standards and rules have been inspired by those of other countries (mainly the United States), but adapted to the Mexican reality. Notwithstanding its virtues, however, the environmental law has shown some shortcomings: it lacks specificity in some aspects and in others it may be too demanding. As it stands, it seems impossible both financially and institutionally to implement the law effectively.

When the economic crisis occurred in 1995, the problems posed by the law became more evident and acute. There are too many standards, and it is almost impossible to ensure their application because of the lack of trained personnel, pollution measurement equipment and funds (Giner de los Ríos, 1995). The procedure to process applications for investments is too bureaucratic and in some ways has become even an obstacle.

New Policy Orientation in Mexico

Many changes are being made in order to avoid the problems mentioned above, and at the same time improve the quality of environmental rules, promote environmental cost internalization, and furnish the authorities with adequate tools for a better enforcement of environmental regulations. The new policy on standards aims at avoiding the bias toward "command and control", and creates instead "quality" standards. The idea is to overcome the fragmentation of rules and requirements and for standards that deal only with pollution "at the end of pipe" (which is costly and often ineffective) to be replaced by others that induce changes in the production

processes. In this way, the new approach tries to evaluate pollution in a wider sense instead of fragmenting it by individual polluter and pollution components, so that the state of the environment as a whole is preserved. One example might be the establishment of a maximum pollution level for specific valleys. Finally, and complementary to the task of preserving the ecological system as a whole, the "multimedia" pollution control concept would be introduced, by which producers cannot switch pollution from one resource to another in order to comply with a specific standard.

As for the environmental law, a decree to amend the 1988 version approved in November 1996 is expected to make a significant change in the way the environment is protected in Mexico. First, the conservationist bias that characterises the 1988 law will be modified somewhat by the concept of "sustainable utilization" of natural resources introduced in the new version. The conservationist policy tends to freeze all activities in the protected area, so that if it is inhabited, as is the case of most ecologically rich areas in Mexico, the normal activities developed by the local population are banned. The result may be further impoverishment of the population, followed by migration to other areas and the consequent deterioration of the environment elsewhere. The idea is to improve the way people produce in ecologically vulnerable areas, so that they can preserve and better use the resources around them, without further degradation.

A second important change is a much stronger reliance on economic instruments, with the purpose of achieving higher environmental goals. The use of economic instruments would be a powerful complement to a reduction in the number of standards and an increase in the effectiveness of their design. The advantage offered by economic instruments is that they may be less costly to apply than direct controls. They may also help internalise environmental costs and benefits, give greater flexibility to economic agents, offer an incentive to improve technology, and generate financial resources to build infrastructure and other facilities required in environmental management. These instruments would be a means of applying the polluter pays principle.

Third, the new law would lead to a more transparent and complete treatment of environmental impact assessments, albeit more targeted to the potentially polluting producing sectors. This ended up being one of the most controversial points, not only because of the economic costs involved for firms but also because of the establishment of new channels for direct social participation.

Fourth, increased security and legal sanctions are considered. Prosecution of transgressors is made easier by the legal reforms, either through modifications of the penal code, which includes a wider range of

environmental offences, or through some amendments to the environmental law, which allows for a greater number of administrative sanctions than in the 1988 version. For example, among other measures it considers confiscation of goods, as well as sanctions in case of natural resources damage.

Finally, a significantly greater public participation in protecting the environment will be possible. Any person belonging to a community that is threatened by the transgression of the environmental law, or official standards and rules, or protected areas, and that can prove that such transgression is harmful for natural resources, wildlife, public health or, simply, quality of life, can start legal procedures to stop the offence (Article 180 of the new version of the law). The concept of popular accusation was also introduced (Article 190), and allows any person to make an accusation related to environment before the Federal Environmental Attorney (who has to respond in ten days).

Despite the progress made, the new version of the law seems to need further changes, particularly in the fields of "territorial ordering", hazardous substances and legal enforcement.

Initial Experiences with the New Policy Orientation

A programme for environmental protection and improvement of industrial competitiveness is an indication of the new environmental policy orientation. Only large industrial projects, located in sensitive areas, will be submitted to environmental impact assessment, so that the bureaucratic cost that militates against new projects will be reduced. Applications and permits will be received and granted through a single window so as to simplify the procedures. In fact, the original thirty bureaucratic steps to set up an industry have been reduced to twelve. A further effort to decentralise management will be made through the creation of regional centres for industrial environmental management (universities, industry chambers, and local authorities, among others, would be included). An improved information system should guide industry and public authorities as to the best available and feasible technologies.

The picture described above shows a significant transformation of the regulatory framework, leading to a greater role for the market. Deregulation is also taking place in Canada and the United States, partly as a result of budget cuts and pressures from industry. As in these countries, in Mexico these changes have created heated controversies. Those who see

deregulation and less direct control of emissions as a way of lowering environmental standards are against the changes as much as those who perceive the new strategy as a way of transferring environmental costs to the private sector, thereby undermining competitiveness.

Regardless of this debate, a question as yet without an answer is to what extent a country like Mexico can rely on its imperfect and relatively small market to help elevate environmental protection. From initial experiences of modernization and deregulation, it seems that there will have to be a carefully designed policy mix. The first quality standard, no. 085, approved in December 1994 to be implemented in January 1998, and designed to curb air pollution, was meant to be a significant improvement. It integrated energy policy with pollution control targets and considered the creation of a pollution emission rights market. Nevertheless, technical studies showed that the Mexican market is too small for an emission rights market to operate adequately. Furthermore, opposition by the enterprises that would be affected by the program was very strong, and, being so few, they were successful in blocking the initiative.

Other steps, mostly on the cooperation side, have been more welcome. Among these are the voluntary agreements between government and business. Under one of these, the enterprise has to report on its polluting emissions and agree on a transitional period to reduce them to acceptable levels. There has been considerable interest in these agreements, because enterprises avoid immediate sanctions (such as fines and closures) and at the same time they can plan their investments ahead. Agreements of this sort have been reached with important firms such as Petróleos Mexicanos (PEMEX), Ford Motor Company and Volkswagen.

No matter how controversial environmental policy changes have been in Mexico, undoubtedly Mexican authorities and the general public have had to reflect deeply and quickly about standards, law and enforcement. Mexico's engagement in NAFTA, the OECD and APEC have most probably accelerated these efforts. There certainly has been a serious intention to modernize the law and adapt it to the new circumstances, with the explicit aim of increasing effective environmental protection.

CONCLUSIONS

NAFTA and its ESA seem to be a notable accomplishment from the environmental point of view. It is the first trade agreement to reconcile trade and ecological interests, and to go beyond the WTO provisions. The

traditionally conflicting issues of trade and environment have been bridged with cooperation. In this sense, NAFTA and the ESA make an important contribution in terms of regime- and institution-building. On the regime side, the new procedures for dispute settlement in the ESA are quite unique, precisely because of the emphasis on the joint effort of the parties to find cooperative solutions. These provisions will certainly be a point of reference for future regional trade agreements and the treatment of ecological problems in multilateral accords such as in the WTO. As to institution-building, the creation of the North American Commission for Environmental Cooperation, with a wide mandate in terms of cooperation initiatives and dispute settlement, will also be an important model for other treaties.

The "green aspects" of NAFTA are, nevertheless, far from being completely coherent and unambiguous. The environment and trade link remains uneasy, particularly on the sanctions issue, which has become, for the moment, a matter more of principle than of practice. NAFTA and the ESA left a considerable trail of uncertainties and a sizeable residual agenda. The latter includes the limited way natural resources are dealt with, some loopholes that could leave room for lowering environmental standards, the limited tools the Agreement offers for internalizing environmental costs, and the weak criteria available in the agreement for assessing the extent to which environmental domestic laws are enforced. At the same time, NAFTA and the Side-Agreement do not resolve one of the pressing problems not settled by the Uruguay Round or the WTO, relating to how to approach PPMs. However, some of the remaining ambiguities will be clarified as the cases of "systematic non-enforcement of national environmental laws" are brought before the Commission. The Commission's analysis and decision making will set precedents for dealing with other cases to come, and will help complete the regime-building course.

This process, again, has not been and will not be smooth. The short experience so far shows at least one source of dissatisfaction for some environmentalists: two demands denouncing legal changes in the United States that could reduce environmental standards were rejected by the Commission because its task is mainly the enforcement of laws, not their evaluation or assessment. This outcome undoubtedly creates a pattern for the Commission's response to future demands of this sort. On the other hand, first results are encouraging. Up to now, on environmental matters the NAFTA and the ESA have proved, as intended, to be a bridge for cooperation rather than an instrument for sanctions. On the cooperation side, the accomplishments were numerous, whereas on the sanctions side very few cases were raised. Yet, future developments in this area are not

totally clear for Mexico: being the most backward of the NAFTA partners in terms of environmental protection, it may be subject to numerous environmental demands, which may not target the main environmental problems of the country and at the same time may be costly. But precisely because of its environmental deficiencies, it may be the main beneficiary of cooperation within NAFTA, and in this way it may find important solutions to its ecological problems.

Mexican experience in the forging of NAFTA and the ESA has been extremely rich. Even prior to the approval of the trilateral agreement, and to a greater extent since it was signed, the Mexican regulatory environmental framework has been going through a profound transformation. During the period of negotiation, the environment was highlighted and awareness has been raised since then. A wide range of changes has been undertaken on standards and the legal aspects concerning the environment. At the same time, a great number of relevant trilateral initiatives, projects and agreements have been worked out to improve the North American ecology, and Mexico will greatly benefit from them. In addition, the greater awareness of the public, domestically and within the NAFTA region, concurrently with the channels opened by the Commission for the public's complaints, creates better conditions for enforcement.

For Mexico, apparently the most uncertain and conflicting aspects have been the difficulties of adapting its rules to the new international environmental requirements. Mexico had set unrealistically high standards, probably inspired by those of the United States, and has not been able to enforce them adequately. It has now geared toward deregulating (that is, to fewer and fewer standards but better targeted environmental impact assessment studies) and, at the same time, modernizing its environmental law to consider pollution in a wider sense, introducing economic instruments to achieve environmental goals, creating the necessary channels for public participation, and, overall, making the rules more easily applicable.

Developing countries such as Mexico seem to need flexibility to control pollution. A few well-conceived standards, together with some efficient economic instruments aided by some non-economic instruments, may be the best combination to correct some market failures. Instead, to centre environmental protection mainly on "quantitative command-and control instruments", which require very close monitoring, has proved to be too costly and has undermined the confidence on environmental policy in developing countries (World Bank, 1992). Market instruments, such as a polluting permits market, could be introduced gradually, as the conditions of market size and modernization of standards are met.

11 Regional Integration and Building Blocks: The Case of Mercosur

Diana Tussie and Patricia Vásquez

Initial steps for shaping Mercosur can be traced back to 1986, when Argentina and Brazil started a process of managed regional trade, leading, for the first time, to the signing of seventeen sectoral protocols which were ratified by each member country in 1989. By 1991, those timid attempts at economic integration had evolved into major agreements for eliminating trade barriers. That year, Argentina, Brazil, Paraguay and Uruguay signed the Asunción Treaty by which the four Latin American countries committed themselves to establishing a common market by 1995. In moving towards that goal, signatories to the Treaty agreed on a four-year Trade Liberalization Programme and a commitment to establish a Common External Tariff (CET) by January 1995. Also, the Treaty of Asunción was amended once in 1994, in the Additional Protocol of the Treaty of Asunción, known as the "Protocol of Ouro Preto", which includes common trade policy measures such as a common system of rules of origin, regulations against unfair trade practices by third countries, a Mercosur customs code and harmonized customs regulations (Laird, 1997).

The creation of Mercosur has rested on two pillars, the building of democracy and the trade policy revolution in the region. One after the other and with few exceptions, Latin American countries succeeded in leaving behind decades of military regimes and managed to consolidate democratic ruling. Most Latin American countries engaged in deep macroeconomic reforms to reverse the perverse effects of the debt crisis of the early 1980s. Thus, the import substitution industrialization policies that characterised the 1960s gave way to import liberalization and market-oriented economic policies in most countries. Political consolidation came hand in hand with a rapidly increasing outward orientation made visible by unilateral adoption of market economies as well as a more participatory attitude in the work of the General Agreement on Tariffs and Trade (GATT) and later in the World Trade Organization (WTO).

Decision-making within Mercosur is by consensus, and rests with an intergovernmental body called the Common Market Council. The Council is made up of foreign and economy ministers, and in practice the presidents of each country, meeting twice a year. The Council designs policies, negotiates and signs agreements with third parties and approves "compulsory" decisions. The Council is assisted by the Common Market Group, which gives advice on social and economic issues. The groundwork of the Common Market Group is done by the Trade Commission of Mercosur, formed by public officials from six ministries and representatives of the central banks of each member country. The Trade Commission deals with trade and customs regulations, making suggestions to the Common Market Group about new rules or about ways of modifying existing ones. It builds on research and consultations carried out by technical committees in charge of specific issues such as the environment, technical barriers to trade, safeguards, and non-tariff barriers to trade.

Pragmatism seems to be the essence of the functioning of Mercosur. Agile decision-making and the absence of supranational institutions are the core elements behind its obvious flexibility. The only permanent office is the Administrative Secretariat, created to assist member countries with purely administrative issues. Similar to NAFTA, Mercosur has avoided the creation of permanent structures, and relies on inter-governmental bodies and existing institutions. Weekly meetings are organized around a rotating six-month chairmanship held by each country in turn (pro tempore presidency). This minimalist approach to institution-building breaks with past integration attempts that took place around gigantic and complex structures, which remained out of all proportion to the actual trade process. However, there is a down-side to minimalism. Even the smallest disputes tend to go up for settlement to the presidents, which means that small disagreements become overly politicized and can even risk progress in unrelated topics.

Mercosur could be understood as a means for member countries to expand outward towards foreign markets and attract foreign direct investments, in a context of unilateral and multilateral trade liberalization. Business has been instrumental in achieving those objectives. In fact, the group's path is mainly drawn by agreements between the government and the private sector, with little input from other actors in the society. With Mercosur, it is now easy for companies to swap parts, products and managers across borders.

The greater part of intra-regional trade was liberalized between 1991 and 1994, while a few products were included in a "convergence regime" (régimen de adecuación) which allowed for exceptions to the duty-free treatment until 1999 (Paraguay and Uruguay will have an additional year to comply). Exceptions apply to the automobile and sugar industries, which are subject to special arrangements, and to groups of products considered sensitive by each member country, mostly in area of capital goods, chemicals, computers and telecommunications (Bouzas, 1995; Laird, 1997). With these few exceptions, today intra-Mercosur trade in most products is tariff-free, and the CET adopted in 1995 is now applied to most imports.

The adoption in 1995 of the main common trade tool, the CET, marked the formal launching of Mercosur. The CET is applied on 11 tariff levels, with tariff rates of 0% minimum and 20% maximum, reaching an 11.3% average. Almost 88% of total tariff lines have had their CET operative since 1995, while the remainder are part of the "convergence regime" mentioned above, which allows for a maximum of 300 products listed per country (Paraguay is allowed 399). Mercosur remains a customs union in the making until remaining tariffs are completely slashed and until full implementation of the CET (Bouzas, 1995; Bouzas, 1997). Unlike NAFTA, Mercosur still lacks commitments on free trade in services, or on such controversial issues as intellectual property and government procurement. Nor do agreements allow free movement of labour.

Despite this pending homework, Mercosur remains the most ambitious scheme of regional integration since the creation of the European Community in 1957. With 200 million consumers, it represents the fourth largest integrated market, after NAFTA, the European Union (EU) and Japan. Since its creation, Mercosur has shown a clear dynamism: total exports among Mercosur countries, which were US $4 billion in 1990, more than tripled to $14.5 billion in 1995. Also, combined GDP has grown by an annual average of 3.5% since 1990. However, some of this marked trade expansion is not directly attributed to Mercosur, because trade with other countries in region also expanded. Also, one of the fastest-growing areas is automotive trade between Argentina and Brazil, which resulted from bilateral agreements that are not part of Mercosur. The increasing trade activity within Mercosur has started to attract other partners. As of 1996, a free trade agreement was signed with Chile, which became an associated partner, but without

adopting the CET due to its relatively more open trade policy. Bolivia also became an associate member in February 1997, and Venezuela is currently showing strong interest in following suit.

This dynamism of the South American Common Market goes hand in hand with the expansion of a broader regional unit, the Free Trade Area of the Americas (FTAA) which aims at removal of all barriers to trade and investment by the year 2005, as agreed by the heads of states of thirty-four countries gathered in Miami at their first Summit of the Americas in 1994. The environment was one of the main topics on the agenda of the meeting. Participating countries agreed on four principles to lead the path towards a hemispheric economic integration: to preserve and strengthen democracy; to promote prosperity through economic integration and free trade; to eradicate poverty and discrimination; and to "guarantee sustainable development and conserve the environment for future generations".

The development of the agenda on the environment has matched the two phases of Mercosur. During the preparatory phase, which extended from 1991 to 1994, the group centred its development on a narrowly defined trade policy agenda. The environment was a side-issue, hardly among the hierarchy of priorities. The second phase started with the formal launching of Mercosur at Ouro Preto in 1994. At that point, the environment began to emerge as an official issue per se. Piecemeal cooperation has developed on the definition of shared interests over jointly owned resources. The definition of a proactive agenda, however, is blurred.

The next section of this chapter reviews the prominent role that jointly owned river resources have historically played in the region as the main focus of political and even military competition. The section highlights the influence of political cooperation in eliminating a geopolitically biased vision of the environment. The section after this starts with a chronological description of the evolution of the environmental issue since the creation of Mercosur. It tries to show how natural resource management has evolved from being a bone of contention to a meeting point allowing the gradual emergence of what we could call a "condominium approach" for managing natural resources. The following section shows how the market plays a significant role in moving the environmental agenda forward. The penultimate section reviews the intra-regional and extra-regional issues to be considered for building a proactive environmental agenda. Finally, the last section offers some conclusions.

COOPERATION ON THE ENVIRONMENT: THE STARTING POINTS

The management of shared natural resources has always been a conflictive issue, and thus high on the regional agenda. Until the mid-1980s, relations in the region were tinted by the military rivalry between Brazil and Argentina. A geopolitical vision of the environment prevailed, and the course of regional environmental relations followed the ups and downs of this vision. The struggle over control of the main shared natural resource, the River Plate waterway system, was marked by a tense as well as intense record of cooperation and conflict, shown on the one hand by tensions between Brazil and Argentina, and on the other by competition to attract Paraguay and Uruguay to favour their respective causes.

In the late 1960s, massive hydroelectric power projects seemed to be multiplying endlessly in the region's shared water resources, exacerbating the tense relationship. In 1969, the present Mercosur members and Bolivia ratified the River Plate Basin Treaty as a preliminary attempt to work out principles for a division of regional waters, over which a deep-seated conflict had always been on the point of flaring up. Signatories to the Treaty pledged to make the necessary legal arrangements at home to improve navigation, the use and conservation of water resources, and the development of physical infrastructure. They also made a commitment to the sound use of waterways, animal and plant life preservation, and mutual cooperation in education, sanitation and the prevention of diseases. But the Treaty had few binding commitments. It was mainly an exercise in mutual containment, and did not really help to settle the roots of the disagreement. Two years later, the signatories agreed that on international rivers with successive courses each country could make use of the waters in accordance to its needs "as long as it causes no injury to another" and does not affect use of the river or alter the conditions of navigation (Milenky, 1978).

The vagueness of this pronouncement did not help to resolve the simmering conflict over the division of waters, which flared up again barely two years later, when Brazil announced the construction of the Itaipú Dam with Paraguay. Argentina felt immediately threatened. The dam, to be located 13 kilometres from the Argentine border on the Paraná river, was planned to become the world's largest hydroelectric complex at the time. The project upstaged Argentina's own plans, introduced technical complications for Argentine downstream projects, and opened the broader issue of the respective right of countries to international waterways.

Itaipú became a cause célèbre in 1972, when Argentina tried unsuccessfully to amend the final declaration of principles at the United

Nations Environment Conference in Stockholm to include a call to countries to consult with each other before taking action on international rivers. Argentina maintained that the Paraná canyon was a "geographic peculiarity", a hydrological unit in which changes at any point affect all others. Brazil rejected the prior-consultation proposal, upholding a country's right to act unilaterally in matters of international rivers as long as no damage to others is caused. After losing the diplomatic battle, Argentina accelerated plans to build two dams south of the Itaipú site, at Corpus and Yacretá. At the end of 1972, representatives of both countries convened at the UN to avoid going to war over the issue (Herrera Vegas, 1995).

Although war was avoided, the conflict simmered on. It was partially settled seven years later, when Brazil, Argentina and Paraguay signed the Corpus-Itaipú Treaty. The Treaty agreed on specific rules for building two hydroelectric complexes on the Paraná River: Corpus between Argentina and Paraguay, and Itaipú between Brazil and Paraguay. (Segre, 1990). Nevertheless, Argentine fears of lagging behind in the geopolitical competition over water and energy were not appeased, and so it hurried to get on with Yacretá, yet another bi-national project with Paraguay. From the start, the Yacretá project was questionable. The feasibility study, for example, overlooked the fact that the geographical and soil conditions of the dam site on the Paraguayan border were unsuitable (Tussie, 1995). Nonetheless, the World Bank and the Inter-American Development Bank supported the project in 1979, with $200 million dollars each; at the IDB, it was the single most important loan at the time. Still today, the environmental consequences of Yacretá raise objections with regard to its impact on adjacent forests, pasture lands, fisheries and resettlement. In October 1996, a group of NGOs brought up the environmental consequences of the Yacretá dam for review under a newly created inspection panel for the World Bank and Inter-American Development Bank.

The other side of the coin to this zero-sum game was the bilateral cooperation between Uruguay and Argentina. The history of environmental accomplishment between the two countries goes back to 1969, when they signed the Treaty of the River Plate and Its Seashore. It was the first time that countries on the River Plate basin came together, not merely for a damage limitation exercise but with a constructive agenda: to preserve shared water resources of mutual interest. The accord made each party responsible for "protecting and preserving aquatic surroundings, and especially for preventing pollution" (Article 48). It also adopted the principle of shared responsibility for any polluting activity in the River Plate (Article 78) and banned "the release of hydrocarbons". In 1975, Argentina and Uruguay continued their record of cooperation and agreed to build the Salto Grande

dam (Brailovsky, 1978). The dam stands out as one of the few large hydroelectric development projects in the world for which environmental effects were carefully investigated and anticipated. The environmental qualities of Salto Grande were recognized as exemplary by the UNEP.

When Brazil and Argentina were pulled apart by power conflicts, the environment was the principal arena in which these disputes were acted out. In such a context, the concept of shared resources is alien and unthinkable. The fight over environmental resources resulted in rigid and narrow positions. Only when these rivalries were overcome could the seeds of cooperation on the environment be sown. The waterway, once the arena of geopolitical competition, has become the backbone for physical integration. From being the source of conflict, it is now viewed as a valuable possession in the environmental patrimony. Only at this point, have agreed principles on how to preserve local natural resources become possible. Although a joint corrective action is still lacking, a "condominium approach" to preserve the shared patrimony is gradually taking shape.

PUBLIC POLICIES: ACHIEVEMENTS SO FAR

This section looks at the unfolding of environmental issues in Mercosur's institutional agenda. So far, these involve impact assessments of joint projects and efforts to define a common agenda. Today, new projects to further physical integration carry more careful and more co-operative impact assessments than in the past. But the common agenda has made progress inch by inch. At the time of drafting the Treaty of Asunción, the environmental agenda received some attention: several joint declarations were made, stating a commitment to sustainable development and reconciling the goals of growth and efficiency with improved environmental protection. But after a fast-start the environmental agenda dragged behind.

Joint Impact Assessment of Infrastructure Projects

Improvement of weak transport links is seen as vital for economic integration to proceed. The Paraná–Paraguay waterway, historically the terrain of conflict, is now considered the connecting tissue of Mercosur, contributing to geographical integration. There is a project to improve navigation along the path of the waterway so as to allow for a larger flow of maritime freight extending to over 3,400 kilometres.

The Paraná–Paraguay waterway project is not immune to the conflicts that have historically characterised similar projects. It has been opposed by local communities and NGOs. An important part of the project consists of changing the direction of rivers to speed up navigation. This is expected to have an important negative impact on the local ecosystem, causing floods and droughts as well as the resettlement of local indigenous and rural communities. The major concern is the effect such an endeavour would have on the Brazilian Wetland, one of the richest bio-diversity areas in the world.

Such fears expressed by civil society were echoed by a 1996 report by a specialists review panel, which convened to examine the technical and economic feasibility and the environmental impact assessment of the Hidrovía. The panel examined the report of the consultants hired to carry out the environmental impact assessment of the project, and came to devastating conclusions about the project's feasibility. Arguing that the existing evidence is insufficient to ascertain that the potential impact of the Hidrovía is negligible, as the consultants claimed, the panel emphasised that the potential for long-term impact on the floodplain ecosystems had not been adequately addressed. Also, it stressed that while the key ecological impact of a project of this nature is the long-term effect on floodplain habitats, the consultants failed to analyse changes in floodplain inundation.

The environment has become a major concern when considering the project's feasibility. Agreement between the five countries involved has been difficult to reach, owing both to the massive investments the plan would require and to its potential environmental and social impact. For the first time in the history of the region, environmental costs are lined up with financial and other considerations when looking into the feasibility of a project with potential economic benefits. No final conclusions have yet been reached on how to harmonise the potential economic benefits and the possible social and environmental effects of the project.

Three possible scenarios are under consideration. The first refers to making navigation possible from the start of the course, which would involve deep dredging, the extraction of the bedrock and the straightening of river bends. This alternative is highly controversial, because it is expected to cause important changes to the Brazilian Wetland, possibly drying it up in forty years' time and, in turn, leading to droughts and floods in the region. The second involves increasing navigation only up to the edge of the Wetland, in order to avoid going through it. This alternative would still imply taking away a large part of the bedrock in Porto Murtinho, and it might have a similar effect on the Wetland as that

described above. The third considers the possibility of calling off large engineering projects on the Wetland, so as to mitigate direct environmental impact as well as overall costs.

The very scope of the plan, which involves massive investments, coupled with concern about its environmental and social impact, has raised doubts about its ultimate feasibility. If at all, the third scenario is the most feasible of the three. Financial and environmental costs make agreement between the five countries involved (the full Mercosur members plus Bolivia) difficult to reach. While President Wasmosy of Paraguay has been quoted as saying he has a vision of a "Mississippi that will not freeze", Brazil and Argentina, which have no lack of Atlantic seaports, are less enthusiastic.

Yet impact assessments, while necessary, constitute preventive exercises of potential negative effects of projects in the pipeline. Sound environmental protection also calls for the development of a positive agenda. Mercosur's work in that direction, as we show in the following section, is ambitious, but still remains embryonic. The customs union is still far from achieving the environmental goals outlined by member countries at their first joint declaration on the issue in 1992.

The Environmental Agenda

Although pronouncements on environmental preservation are constant, work on a positive agenda has so far been modest. The environment has been a side-issue to the major efforts concentrated on the development of a trade agenda. Declarations of intention have not yet materialised into actual deeds, although references to the concept of sustainable development, and the need to make it an important goal for the group, have been routine among Mercosur member countries.

The environment was specifically mentioned in the introduction to the Asunción Treaty, which set the framework for the preparation of Mercosur in 1991. The agreement emphasised that regional integration helps enlarge national markets through "the most efficient use of available resources, and environmental preservation". It was also introduced when the trade liberalization schedule for the group was agreed at the 1992 Las Leñas Presidential Summit. However, at Las Leñas the environment was not included as an issue in its own right, with progress targets (unlike all the other topics on the negotiating table), but rather as the subject of recommendations to accompany the trade-related

schedule of commitments. The Las Leñas summit took a further step by creating the Specialized Meeting on the Environment (Reunión Especializada de Medio Ambiente – REMA), which was expected to sow the first seeds of an environmental agenda for Mercosur. Starting in November 1993, the REMA met five times in one year, and at that point the environment gained momentum for a while. The REMA was given the responsibility of analysing the environmental legislation of each member country. The group was expected to come up with specific suggestions on how to harmonise protection of the environment, and how to eliminate non-tariff barriers to trade applied for environmental reasons. Instead, it produced eleven non-binding directives.

If nothing else, the creation of the REMA opened up an institutional milieu for joint consideration of the environment. It gave the four countries an incentive to produce a joint statement to present at the Rio Conference on Environment and Development in 1992. The international status of the Conference allowed Mercosur governments to take up the opportunity to look beyond regional borders, and take a more global perspective on world environmental issues for the first time. As a result, Mercosur signed the Canela Declaration of 1992, prior to the Rio Conference on Environment and Development, which included statements on protection of the atmosphere, biodiversity, hazardous wastes, land degradation, forests, water resources, financial resources, international trade, marine environment, and strengthening of institutions to achieve sustainable development (FARN, 1995). Canela was a first step into a wider vision of the environment, a move beyond the "condominium approach" of promoting a partnership to take care of shared natural resources.

The official launching of Mercosur in 1995 gave the environment something of a new impetus. Building on this momentum, the environmental ministers of the four countries met that year for the first time at Taranco, Uruguay. The declaration resulting from Taranco was rather ambitious, considering both the intra-regional and extra-regional agenda. In terms of the intra-Mercosur issues, legal harmonization of environmental regulations was brought into the agenda for the first time as the main goal to be achieved in 1996. The Taranco declaration went even beyond the GATT–WTO agreement by stressing the need to harmonize production and process methods (PPMs) that might have an environmental impact on shared ecosystems, a process known in the jargon as the "reduction of asymmetries". In terms of the extra-regional agenda, the ministers emphasized the importance of keeping a close eye

at the ISO 14000 negotiations to verify the possible effects these might have on the international competitiveness of Mercosur products. They also expressed their desire for agreement on a common strategy for international negotiations.

Beyond these long-term goals, the ministerial meeting at Taranco also took more immediate and practical measures. REMA was upgraded to become a technical subcommittee (TSC 6) in its own right within the structure of the Common Market Group, the executive organ of Mercosur (Hirst, 1992). This move was meant to allow the environment to acquire a higher profile, with the ultimate goal of making it an integral part of the agenda, but achievements have not been forthcoming and efforts lie dormant. The subcommittee's initial steps were to put its house in order. It called for all environmental issues, which up to then had been scattered about in the work of other technical subcommittees, to be brought under its umbrella. Previous resolutions resulting from the work of those subcommittees, such as those concerning intra-regional transportation of hazardous goods, limits to vehicle emissions and vehicle noise levels, will now come under its aegis.

But scant progress, if any, has been achieved on this front. Legal harmonization of environmental regulations that was intended to be concluded by 1996 has not moved much beyond the environmentally-related resolutions already agreed in other technical subcommittees. Work was geared towards producing an Additional Protocol to the Asunción Treaty on the environment. The Protocol is just an expanded and more normative version of the basic directives. It contains further joint statements on the idea of establishing a Mercosur eco-label, the need to improve enforcement of environmental legislation in each member country, and the establishment of harmonized monitoring of regional environmental impact assessments. Approval of the Protocol by the four member countries and within each country by the government departments involved in the issue has been controversial due to substantial conceptual differences.

To sum up, then, Mercosur has allowed the "condominium approach" to come to the fore. Preventive joint-impact assessments are an integral part of this approach, based upon a shared effort towards sustainable development, but much remains to be done in a proactive fashion. Forward movement has generally come as an after-effect of closer political ties and trade liberalization, rather than as a conscious institutional effort, as is the case of joint impact assessments. While joint public policies for this condominium have yet to be developed, market forces have begun to operate.

MARKET DRIVEN DEVELOPMENTS

Beyond the institutional drive, trade liberalization and regional integration have brought natural trading partners together into a new pattern of trade and investment with environmental effects. Although these are still incipient and not well documented, some insights can be offered at this stage.

In certain cases, the resort to market-oriented policies may have spared countries some pollution problems by allowing the transfer of international environmental standards (Birdsall and Wheeler, 1993). A case in point is the upgrading efforts in Argentina's petrochemical and paper industries. Petrochemical firms are motivated by a concern not to be excluded from foreign markets. Local subsidiaries of foreign petrochemical firms are also transferring their more rigorous home standards. In the paper sector, pressure from customers in export markets has been an important factor influencing regional incorporation of clean technologies and sustainable production methods. The largest Argentine producer of tissue-paper has already launched a deep environmental restructuring program in Argentina due to pressure from its foreign partners (Chudnovsky et al., 1996).

The steel industry in Brazil and Argentina has undergone a similar process. More favourable macroeconomic policies, coupled with regional integration, served to spur restructuring. Exports soared in the last decade, forcing the largest firms to build new plants to respond to increasing foreign demand. These incorporated more modern environmental technology, but outdated production lines are still used to supply the less stringent environment standards of the local market. This dual production pattern is also evident in the leather industry. The Argentine leather industry is composed, on the one hand, of a few world-leading leather producers that sell mainly to international markets, and, on the other, by a larger number of smaller firms that respond to local market demands. While the first group of firms is responding to higher environmental standards abroad by investing in modern effluent treatment technology, most of the non-exporting smaller firms, in contrast, lack the financial means for such upgrading. The newly-born Mercosur trade relations will also contribute to environmental upgrading in this sector as Brazil's dynamic export-oriented shoe industry, an increasingly important market for Argentine and Uruguayan hides, feels the pressure to upgrade production processes to comply with eco-labelling initiatives abroad (see Motta Veiga, Chapter 4 in this volume).

But market-friendly policies have certain limitations. In some areas the increase in trading opportunities may be leading to specialization and production of pollution-intensive goods or to the intensification of unsustainable practices. The agricultural sector is a good example of how the shift in production patterns triggered by regional integration results in additional stress to the home environment if it is unchecked by counteractive policies. The increase in Brazilian regional demand for rice and blackbeans is a case in point. In the absence of a land conservation scheme, the expansion of blackbean production in Argentina's north-west (especially in the province of Salta) and of Argentine and Uruguayan rice production is leading to deforestation. Deforestation, in turn, may cause a loss of bio-diversity and flora and fauna, and may destabilise water cycles and provoke soil erosion, among other effects (see Sáez, Chapter 2 in this volume). In these areas, both domestic public policies and joint institutional mechanisms are lacking, and public participation and community involvement are still very weak.

MERCOSUR AS A BUILDING BLOCK: THE AGENDA INTO THE FUTURE

Clearly, in Mercosur, the danger of the environment being a zero-sum game is no longer present. Yet at the same time, upgrading and a joint approach to natural resource preservation has not been high on the institutional agenda. There are several reasons for this. First, Mercosur is still in its infancy. There have been general statements about the importance of preserving natural resources in the region, and about the principles that should govern regulations in that direction, but these have yet to be operational. Second, the philosophy behind Mercosur is one of regulatory competition. The development of operational principles goes against this philosophy: it means narrowing the field of competition. In essence, the climate of cooperation has served to put a brake on the negative spillover effects of yesteryear, but there is no common agreement to act on the environment.

National environmental laws are a patchwork without a pattern. Political economy considerations, scant enthusiasm from certain sectors of society (such as business), and the relative weakness of environmental interest groups, may be the main obstacles to defining a positive agenda. Only timid efforts have been made to move beyond agreeing on general

directives that merely function as a rather lax framework for policy decisions. But so far the whole institutional configuration of Mercosur is far from being complete, and the capacity to enforce commitments lags behind. There are several key issues that are bound to arise sooner or later in the course of future negotiations. These issues can be grouped into two sets, the intra-regional ones and the extra-regional ones.

Intra-regional Questions

The question of incentives in the new regional context is perhaps the first priority. None of the Mercosur countries has yet adopted domestic rules for industry location from an environmental policy perspective. As a grouping, they will probably need to establish minimum environmental requirements for industrial settlement, together with the implementation of local impact assessments. But this will be a long-winded process, because the attraction of investment is the prime rationale behind the formation of Mercosur. It remains the greatest area of competition among member countries, and one in which competition rather than coordination will prevail for a while.

Recent research has suggested that environmentally motivated relocation of production from developed to developing countries is negligible (Low and Yeats, 1992). Overall, there is little evidence of any significant impact of environmental control costs on the pattern of trade and investment. This might be explained by the relative unimportance of pollution abatement regulations vis-à-vis other locational determinants, such as labour costs and productivity, access to raw materials, markets, and business climate. Hence, if the trade and investment effects are minimal then fears about competitiveness diminish. So, political economy considerations aside, there is less reason to delay strong environmental legislation and enforcement. Mercosur members, as a first step in this area, will need to make a commitment to solve the current lack of enforcement of existing legislation.

Extra-regional Questions

In extra-regional relations, three main issues stand out. First, as environmental policies get incorporated into the work of the WTO, countries have to build on their experience of collaboration in the Cairns

Group in the Uruguay Round of GATT (Tussie, 1993). Now that they are a customs union, they should be ready to articulate their interests and stand up with a single voice in negotiation in the WTO. As Mercosur, they should be ready to advance the trade liberalization agenda of the Cairns Group and to sustain the momentum to discuss the role of distorted agricultural policies on the environment. The reason for sub-optimal environmental standards in agriculture lies precisely in public policies in OECD countries that favour the over-exploitation of environmental goods and services. This is an area that Mercosur should push jointly in the Trade and Environment Committee of the WTO.

Secondly, countries need to get ready for agreements on tropical forest products. This is a sector in which disagreements have been most frequent in a North–South direction. Tropical forests, particularly in Brazil, are already under the lens. Mercosur members might have to agree on provisions for sustainable logging, which prima facie might not be difficult to reach, because legislation is very much alike in the four countries: similar classification standards, logging rules and limitations for private forests are used; similar reforestation mechanisms are in place; and similar fiscal and direct incentives are provided, as well as preferential loans for forest exploitation or conservation (FARN, 1995).

Finally, countries have not sat down to work out a treaty hierarchy among the international agreements to which they are party. In case of conflict between Mercosur rules and those adopted by international agreements, the signatories to both will have to agree on which will prevail. NAFTA, for example, lists three international environmental agreements, the Basel Convention on Transboundary Movement of Hazardous Wastes, the UN Convention on International Trade in Endangered Species (CITES) and the Montreal Protocol on Substances that Deplete the Ozone Layer. If there is an inconsistency between those agreements and the NAFTA, the obligations to the international environmental agreement shall prevail. Mercosur countries have individually signed international environmental agreements. All four countries have signed the Convention for the Protection of Flora and Fauna and of Natural Scenic Beauties (1940), the Convention on Wetlands (1971), the CITES (1973), the Vienna Convention on Protection of the Ozone Layer (1985), the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), the Convention on Bio-Diversity (1992), and the United Nations Convention on Climate Change (1992).

CONCLUSIONS

The establishment of Mercosur has enhanced the climate for cooperation, but the window of opportunity for the environmental agenda remains unused. So far, Mercosur may be seen as a potential co-ordinating mechanism for environmental upgrading rather than as the upgrader itself. As in the EU, the initial motives for including the environment in the agenda of negotiations were mainly economic. The main goal of integration is to promote trade and investment, and the members of Mercosur have so far concentrated their attention in that respect. The potential environmental damage of competition for natural resources has been averted by a new climate of cooperation, but joint conservation efforts are still lacking. In fact, natural resources have begun to suffer the effect of rapid growth. There is evidence of deteriorating environmental quality in deforestation, soil degradation, unrestrained fishing and water pollution in coastal zones.

Openness per se has favoured upgrading in manufacturing. More and more, export markets are forcing locally-based producers to embrace higher environmental standards. The adoption of voluntary rules such as the ISO 14000 series, as well as technological upgrading to respond to outside standards, are seen by local exporting firms as essential elements for retaining access to international markets. In this respect, there are indications in several sectors of a dual pattern of production – one that is environmentally sounder for export markets and another that is more pollution-intensive for the domestic or regional markets. Generally speaking, this is also related to firm size. Market leaders have been able to adapt to a more environmentally sound performance, while small firms lag behind. The effect of environmental standard-setting on increasing barriers to entry and market polarization, both among and within countries, requires further empirical research if proper compensating mechanisms are to be designed. The political economy aspect of the debate in developing countries is overall a little-researched area, including the role of public opinion.

Mercosur has left the market to operate. It has not advanced much where public policies are required to provide the signals for firms to behave in an environmentally responsible way, particularly in forestry, fisheries, and land conservation, where joint public policies will be needed. Moreover, lax enforcement of environmental legislation in each of Mercosur member countries, coupled with a confusing grid of rules and regulations, may be one of the main obstacles towards reaching common ground in that area.

In spite of weak law enforcement and weak institutional stimulus, environmental improvement seems to be brought about by trading opportunities. This is the positive, albeit limited, contribution of market access. The interest of business in retaining market access appears to be more and more the go-between for resolving the tension between trade and the environment. Mercosur itself has done little to take corrective action. In the longer term, however, a catalysing force in this regard may still come from the agenda of current broader regional integration negotiations to create an FTAA. So far, Mercosur has worked on trying to define environmental affinities and on the establishment of agreed principles, however broadly defined. The next step will be to start narrowing down principles into policies and the acceptance of cooperative monitoring mechanisms to make policies enforceable. That process may not be devoid of obstacles. Moving beyond these will be one of Mercosur's main challenges for the near future, and proof of its stability.

12 Environmental Cooperation in ASEAN

Franck Wiebe

The Association of South East Asian Nations (ASEAN) celebrated its twenty-fifth anniversary in August 1992, just two months after the conclusion of the United Nations Conference on Environment and Development in Rio de Janeiro. Although the proximity of the dates was coincidental, the two events were not entirely unrelated. As ASEAN looked forward to the next twenty-five years, the challenges facing the regional grouping were different from those it had encountered during the previous quarter-century. Environmental issues may not have been at the top of the ASEAN agenda in 1992, but the attention given to these issues in Rio by the international community indicated that these concerns are likely to appear more prominently on the organization's agenda in the future.

While the Rio Earth Summit reflected a growing concern world-wide about protecting the environment, the process of economic liberalization appears similarly to have gained momentum in recent years. The conclusion of the Uruguay Round of the GATT negotiations, the signing of the North American Free Trade Agreement (NAFTA) and the ASEAN Free Trade Agreement (AFTA), and recent progress on trade liberalization by the Asia-Pacific Economic Cooperation (APEC) all provide evidence of the increasing dependence worldwide on trade as the source of economic growth. But even as the conditions governing trade improve around the world, international disagreements over those terms appear to be increasingly frequent. Thus, whether their concerns are about protecting the global environment or about producing a level playing field for trade, countries outside ASEAN are likely to make increasing demands on countries within the region concerning their management of natural resources.

The experience of recent years indicates that ASEAN, as an organization, will need to contend with two very different types of environmental issues: those between two or more member countries and those between ASEAN and non-ASEAN countries or institutions. Regarding the first type, member countries already recognize that many

environmental issues cross national boundaries in the region. As members' economies have expanded, the potential for each country to create adverse effects on common air and water resources also has grown. Given their geographic proximity and the negative externalities produced by rapid economic growth in the region, ASEAN members now face the relatively new challenge of resolving intra-regional environmental issues.

The second type involves the concerns expressed by non-member countries about environmental degradation within the ASEAN region. Such concerns generally are justified on two grounds. First, extra-regional countries may be concerned about environmental management within ASEAN, because they believe that certain management strategies may adversely affect environmental conditions outside the region. The connections between deforestation and global climatic changes or irreversible losses in biodiversity, for example, have been used as a rationale for external pressure to reform logging practices. Second, countries outside the region may be concerned that different environmental standards may affect trade flows. As trade barriers are lowered around the world, some countries have suggested that different environmental standards create an unfair trade advantage in favour of countries that have less stringent requirements.

As environmental issues become increasingly prominent in international discussions, both on their own merits and as part of the trade liberalization process, the manner in which ASEAN responds to these concerns likewise will increase in importance. Member countries may find that a regional grouping such as ASEAN can provide an important forum for the resolution of intra-regional environmental issues, which also can be used in extra-regional environmental negotiations. The evidence suggests that, while intra-regional environmental concerns will receive increasing attention, the likely response will continue to be one of coordinated independent action, rather than cooperative joint action. In terms of responding to concerns raised by non-ASEAN members, the evidence is mixed. While in the past ASEAN has been able to present a unified position to the outside world on some environmental issues, member states apparently prefer to avoid using ASEAN as a negotiating bloc – rather, member countries use other regional or international fora to defend their interests. This approach avoids the appearance of potentially divisive issues on the ASEAN agenda, and allows the institution to retain a non-confrontational stance vis-à-vis the rest of the world.

THE INSTITUTIONAL HISTORY OF ASEAN

The opportunities for future ASEAN cooperation on environmental issues can only be understood in the context of the organization's history. ASEAN's involvement in environmental issues in the past was framed by the paramount importance to the member countries of security considerations. While matters unrelated to regional security have received considerable attention from ASEAN over the past twenty-five years, all members have agreed that these issues should never undermine the solidarity of the institution.

Origins of the Organization

ASEAN was not the first attempt at regional cooperation in Southeast Asia. The South-East Asia Treaty Organization (SEATO) emerged from a conference in Manila in 1954 as a collective security arrangement designed to protect countries in "the general area of South-East Asia" from the communist threat; but only two countries in the region, Thailand and the Philippines, were signatories to the treaty. In 1959, Prime Minister Rahman of Malaya proposed the establishment of an Association of South-East Asia (ASA). While communist countries in the region denounced ASA as simply an offshoot of SEATO, and most other countries in the region responded with a notable lack of interest, the Philippines and Thailand joined Malaya to form ASA (Palmer, 1991). Four years later, the foreign ministers of these three countries declared the formation of "Maphilindo", but neither it nor the ASA was able to withstand the regional tensions caused by the formation of the Federation of Malaysia. As late as 1965, domestic politics in several countries, combined with strained bilateral relations among several regional neighbours, made the establishment of a regional grouping on the basis of any shared security interests, particularly those ideologically-defined, extremely problematic.

A fourth effort at regional security and cooperation was organised by South Korea in 1966, but despite enlisting participation from nine regional nations, the Asian Pacific Council (ASPAC) never garnered much enthusiasm or support (Palmer, 1991). While domestic political conditions in several countries had begun to change by this time, this collection of countries may have been too disparate and the political timing still premature. Although ASPAC survived until 1973, and SEATO was

dissolved only in 1977, neither these nor other early efforts achieved significant levels of regional cooperation.

The signing of the Bangkok Declaration in 1967 established ASEAN, originally composed of Malaysia, the Philippines, Indonesia, Singapore, and Thailand. Given the poor track-record of regional cooperation attempts in Southeast Asia, it is important to consider what has enabled ASEAN to survive and succeed where other efforts failed. The objectives of ASEAN articulated in the Bangkok Declaration were

> to accelerate economic growth, social progress and cultural development in the region through joint endeavour and partnership in order to strengthen the foundation for a prosperous and equal community of Southeast Asian nations; [and] to promote regional peace and stability.

However, while these objectives were relatively forward-looking, the real motivation in the early days was a shared concern about the threat of communism, either through internal subversion or through the external threat in Indochina. Importantly, political changes in Singapore and Indonesia between 1965 and 1967 finally made it possible for these countries to participate in a regional organization that was based on containing the communist threat (Hagiwara, 1973).

Although the organization had greater aspirations for regional economic and social cooperation, security remained the binding common denominator for ASEAN for some time. Significant intra-ASEAN disputes occurred in 1968. The dispute between the Philippines and Malaysia over Sabah flared up again, leading to the severing of diplomatic relations and a suspension of all ASEAN activities for a period of eight months. Finally, in early 1969, Manila agreed to withdraw its claims on Sabah, and the normalization of relations between the Philippines and Malaysia was announced at the Third ASEAN Ministerial meeting in December. Relations between Singapore and Indonesia also deteriorated as two Indonesian marines were executed by Singapore in 1968, despite a personal appeal for clemency by President Suharto, for their participation in a downtown bombing in 1965. As ASEAN survived these early difficulties, member states came to recognize that while intra-regional differences would remain, at the very least they shared an important common interest in regional security defined by the threat of communism. Moreover, ASEAN members perceived that maintaining an institution that represented only their shared interests might generate over time increased mutual understanding, and, as a result, expand these shared interests.

Progress towards regional cooperation within ASEAN has been slow but steady since that time. The first meeting of ASEAN Heads of State did not occur until 1976, which resulted in the Declaration of ASEAN Concord and the Treaty of Amity and Cooperation in South-East Asia. A second summit followed only 18 months later. But while ASEAN made numerous pronouncements at this time, most of these accentuated the organization's continuing concern with peace and stability while making little progress towards any real form of economic cooperation (Luhulima, 1989). The war in Vietnam had ended, but the outcome hardly calmed any regional security concerns, and regional fears of the external threat deepened with the Vietnamese invasion of Kampuchea(Cambodia). Although the third summit in 1987 generated new proposals for economic cooperation, most of the member countries were not yet prepared to alter the fundamental role of ASEAN.

However, five years later, at the fourth ASEAN summit held in Singapore in 1992, member countries faced a very different international environment. Perhaps the most important political change was the resolution of the problem in Cambodia, which appeared to significantly diminish that external threat to the region. Just as security dangers waned, ASEAN leaders at the summit in Singapore faced new economic threats that called for new cooperation – principally increased European integration, the prospect of a NAFTA, and the admission of Hong Kong, China and Taiwan to APEC, which diluted the influence of ASEAN in that grouping (Antolik, 1992).

In response to this changing environment, the ASEAN states pledged to establish a free trade area (AFTA), even though only a few years earlier the words "free trade" had been explicitly excluded from appearing in any ASEAN document because such language might be understood by some as implying the dilution of the sovereign right of member states to determine domestic economic policy. Despite early pessimism, ASEAN members have repeatedly demonstrated their commitment to the process, even bringing forward the dates for reducing tariffs on intra-regional trade.

Therefore, as a result of changes in the political and economic landscape, since the early 1990s ASEAN has been reorienting its focus from shared security concerns toward shared economic interests. As long as the former were paramount, other concerns, especially those that appeared divisive, were either ignored or handled elsewhere. ASEAN was built on shared interests, and was not intended as a forum for resolving differences. Thus, while regional leaders within ASEAN often tout the organization's success as evidence of consensus decision-making, this

track record of agreement and concord has been sustained at least partly by the exclusion of issues unlikely to generate consensus. As ASEAN's agenda is broadened to include new concerns, including those related to the environment, the past practice of deferring difficult or contentious issues, or referring them to other international institutions, may make it more difficult for member countries to utilize the organization to identify creative solutions for the region in the future.

Institutional Framework for Responding to Environmental Issues

The institutional history of ASEAN demonstrates that, prior to the early 1990s, the pursuit of common environmental concerns was low on the agenda. During the 1980s, ASEP strategies became more action-oriented, but nonetheless remained largely plans for raising public awareness through education throughout the region (Phantumvanit and Lamont, 1992). Although ASEAN was paying more attention to environmental issues, the organization's approach centred on issues of concern within members' borders, rather than on issues that crossed national boundaries. The adoption of the Jakarta Resolution on Sustainable Development in 1987 established sustainability as the primary objective for all future ASEP activities, and this was reflected in ASEP III, which covered the planning period of 1988–92. This resolution again focused primarily on issues of national, rather than transnational, importance, but for the first time this ASEP included the overall objective "to promote the proper management of the ASEAN environment".

The existing organizational structure, however, was not adequately equipped to deal with transboundary issues. Thus, in 1989 ASEAN introduced an important structural change by placing supervision of the ASEP in the hands of a new group, the ASEAN Senior Officials on the Environment (ASOEN). This change not only represented the first full incorporation of environmental issues into the ASEAN structure, but also implied the involvement of more senior officials from each member country. Moreover, the change created a structure with sufficient credibility to take on transnational environmental issues. In June 1990, this body adopted the Kuala Lumpur Accord on Environment and Development, which called for efforts leading towards the harmonization of transboundary pollution prevention and abatement practices. Eighteen months later, the Singapore Declaration, issued at the conclusion of the Fourth Meeting of the ASEAN Heads of Government held in January

1992, stated that "ASEAN member countries should continue to enhance environmental cooperation, particularly in issues of transboundary pollution, natural disasters, forest fires and in addressing the anti-tropical timber campaign" (ASEAN, 1995a).

The most recent change in ASEAN structures dealing with environmental issues came in April 1994, when the ASEP was replaced with the ASEAN Plan of Action on the Environment. This was developed with technical assistance from ESCAP and financial assistance from the UNEP, and approved by ASOEN (ASEAN Update, March 1994). It set the strategic blueprint for environmental policy for the period 1994-8, and identified projects for implementation that are consistent with that framework and that will be carried out by working groups within ASEAN. These new changes undoubtedly have increased the credibility and capacity of ASEAN to respond to environmental issues. Any consideration of ASEAN's experience of cooperation on environmental issues must recognize, however, that this collaborative process on the basis of shared (as opposed to common) interests is a rather recent development. (The term "common interests" is used to connote issues that are important in each country, but that are unaffected by the policies and practices of neighbouring countries. The term "shared interests" is used to connote issues that are important in each country and which can be affected by actions of neighbouring countries.)

ASEAN IN INTERNATIONAL NEGOTIATIONS ON THE ENVIRONMENT

Negotiating Intra-Regional Environmental Issues

During the past five years, no substantial disagreements over national environmental strategies or regional environmental disputes have been aired within ASEAN. In an effort to preserve regional harmony and solidarity on security issues, member states have intentionally diverted contentious issues to other fora. As a result, negotiations within the organization typically have involved subtle differences in interpretation of policy rather than significant differences concerning the direction of policy. Two recent issues illustrate the procedures and mechanisms used by ASEAN to determine strategies that are acceptable to all member countries.

1. *Transboundary Air Pollution*

A common environmental problem recognized in all ASEAN countries concerns the poor air quality in and around their largest cities. Since as early as the first ASEP in 1978, ASEAN has looked for ways to help member countries improve their urban living environments. In 1992, declarations produced by meetings of the ASEAN Heads of Government and the Ministers for the Environment identified forest fires as a potential arena for co-operative efforts, but these declarations produced no new activities. In 1994, however, forest fires on the Indonesian islands of Sumatra and Kalimantan (Borneo) elevated air pollution from a common problem to a shared one. The consequence of these fires was a heavy haze that affected many cities in the region and threatened to shut down airports and schools. The haze lasted nearly six weeks and caused widespread health concerns in both Singapore and Malaysia. Air quality levels also dropped significantly in Brunei.

ASEAN's response to this problem is instructive, as it represents one of the very few examples of transborder environmental concerns where a single member country can be identified as carrying primary responsibility for problems experienced by other members. The response had three dimensions. One of the first indications of a possible ASEAN response to the fires in Indonesia came from Prime Minister Mahathir Mohammad of Malaysia. His proposal contained two components: short-run assistance from economically-advanced Western countries to put out the fires, and long-run ASEAN cooperation to pool resources to fight frequent outbreaks of forest fires in Indonesia. Dr Mahathir asserted that individual ASEAN members could not afford to fight these fires individually but, he said, "collectively we may be able to have some capacity" (*The Straits Times* (TST), 7 October 1994).

Before this suggestion could be proposed to ASEAN, however, Singapore and Malaysia conducted a Joint Meeting on the Environment. This meeting resulted in the formulation of proposals that would establish an early-warning system for monitoring haze and for exchanging information on health-related problems caused by the pollution. Although the proposals were to be passed on to the Informal ASEAN Ministerial Meeting on the Environment a few days later, the strategy developed at this joint meeting appeared to be fundamentally bilateral in nature. The meeting included discussions on the problem of transborder air pollution caused by forest fires in Indonesia, and produced an agreement among the ministers "to enhance cooperation to manage natural resources and control transboundary pollution within ASEAN, to develop regional early warning

and response system, and to improve the capacity of member countries in these areas" (ASEAN, 1995a). Interestingly, while the meeting generated this multilateral agreement to enhance cooperation, it did not establish any new regional mechanisms for responding to future problems. Rather, bilateral agreements between Indonesia–Singapore and Indonesia–Malaysia, the three countries hardest hit by the fires' effects, which established new links for cooperation on environmental issues, represented arguably the most concrete progress on regional cooperation to emerge from the ASEAN meeting.

While the bilateral negotiations represented the second part of the response, the final conclusion represented one of the most significant examples of collaborative efforts on environmental issues within ASEAN. In June 1995, a meeting of ASEAN environment ministers in Kuala Lumpur yielded a multilateral plan, motivated by the air pollution problem, to combat transboundary pollution (TST, 18 June 1995). The ASEAN Cooperation Plan on Transboundary Pollution introduced several new mechanisms to prevent future haze problems in the region, including early-warning systems for better detection and control of forest fires, restrictions on the burning of biomass from land-clearing activities during dry periods, and limitations on the generation of pollution from local sources during haze-warning periods. These mechanisms supplemented the bilateral arrangements already achieved in the preceding months. The prospects for avoiding future haze crises were improved by Indonesia's pronouncement at the meeting of environment ministers of its own commitment to combating the causes of haze through both additional educational efforts and improved enforcement of existing regulations.

The three-year process by which this shared environmental problem was identified and a cooperative strategy was developed reveals much about the manner in which ASEAN operates and the way it is evolving as an institution. Several countries not only staked out initial positions well before meeting together under the aegis of ASEAN, but actually developed independent or bilateral strategies that could be implemented rapidly. In the earliest stages, ASEAN was relegated to the status of a discussion and planning forum – direct involvement for ASEAN came only several years later, after the appropriate remedial measures had been identified and tested by individual member countries. While this process reinforces the conservative image of ASEAN (given its minimal role in developing the appropriate response to a regional issue), its eventual involvement in responding to transboundary pollution reflects the slowly expanding scope of its activities.

2. Transportation of Hazardous Waste within ASEAN Waters

A second shared environmental concern involves the transportation of hazardous waste between ASEAN countries. ASEAN has avoided becoming a major dumping ground for toxic waste produced in the West: less than 2% of hazardous waste shipped from OECD countries to Asia between 1990 and 1993 ended up in ASEAN countries. With the rapid rate of industrialization experienced recently by most ASEAN countries, however, each is likely to face local waste problems in the future. ASEAN members recognized the potential danger of firms in one ASEAN country unloading their waste in another country in the region, and this raised concern within the regional grouping.

The ASEAN response to this danger had two components. First, the disposal of hazardous wastes became an important issue for the ASEAN working group on transboundary pollution. As early as February 1994, sources within Singapore's Environment Ministry indicated that the working group would propose new guidelines for the movement of waste that would be based on the principles of the Basel Convention (TST, 7 February 1994). To date, however, this working group has not published these guidelines. While the ASEAN Cooperation Plan on Transboundary Pollution, signed in June 1995, included consideration of this issue, the co-operative activities identified were far less significant than those developed for transboundary air pollution.

In the absence of an ASEAN agreement, two countries signed their own bilateral memorandum of understanding (MOU) governing the flow of hazardous waste between them. In July 1995, *The Straits Times* reported that "Singapore and Indonesia underlined with this agreement their commitment to stamp out illegal shipments and dumping activities." Interestingly, neither the yet-to-be completed ASEAN guidelines nor the Singapore–Indonesia MOU appears to have been based on any actual environmental problem. In fact, in the case of the bilateral agreement, representatives of both countries described the problem as not serious, but said that precautionary measures had to be put in place (TST, 29 July 1995). The rest of ASEAN apparently awaits the conclusions of the Working Group.

Compared with the resolution of transboundary air pollution, the response to the transportation of hazardous wastes appears to reflect a lower level of cooperative activity. However, in reality the two cases are not entirely inconsistent. Rather, the response to hazardous wastes is perhaps better viewed as still in its early stages. No important problems have arisen, so there have been insufficient opportunities for member

countries to develop and test possible strategies (although some of the bilateral arrangements may represent attempts to do so). Moreover, because there have been no real incidents involving hazardous waste in the region, there has been little impetus from member countries to achieve a consensus on the appropriate ASEAN response. Indeed, the discussion of the subject at the Informal Meeting of Environment Ministers in June 1995 may be seen as one of the strongest examples of proactive ASEAN involvement in environmental issues.

Negotiating Environmental Issues with Non-Member States

1. Land-sourced Marine Pollution in East Asia

Although water pollution from shipping accidents receives significant media attention, pollution from land-based sources actually accounts for nearly three-quarters of all water pollution (Rose, 1994). Contaminants come from rural, urban and industrial zones, and include fertilizer run-off, untreated human waste and garbage, and industrial by-products. Land-sourced marine pollution (LSMP) not only comes from all sectors, but also is generated, in differing quantities, by every country.

Given the geographic proximity of the ASEAN member countries and their shared sea resources, the problem of LSMP seems particularly amenable to collaborative efforts under the auspices of a regional organization. In recent years, the countries have moved forward to address concerns related to LSMP – interestingly, many of these activities have been undertaken within institutional fora other that ASEAN. In mid-1993, for example, a Programme of Action to Control LSMP in East Asian Seas was approved for implementation. This program is one of several projects carried out under the East Asian Seas Action Plan, however, and represents part of the UNEP's Regional Seas Programme in Asia. The plan initially involved Indonesia, Malaysia, the Philippines, Singapore and Thailand, but was expanded to include Brunei and Australia. The program contains both national and regional elements. Both seek to accomplish three objectives: to improve pollution monitoring and control; to expand institutional capacity to address LSMP issues; and to enhance public awareness of the problem. While participating countries are expected to demonstrate their commitment through the elaboration of national action plans, the Regional Seas Programme has estimated that the regional component will cost approximately US$5 million over five years.

A second important regional effort directed at reducing marine pollution from both land- and sea-based sources was implemented under the auspices of the United Nations Development Programme (UNDP). The Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas was initiated in January 1994, and was formulated by a number of East Asian countries as a means of securing financial and technical assistance for the Global Environmental Facility. At the outset, the programme involved 11 countries in the region (including all 6 ASEAN members) and will cost an estimated US$8 million over five years.

Land-sourced marine pollution is clearly a problem common to all ASEAN member states and, to the extent that the seven member states share sea resources, it is also a shared problem. As an organization, ASEAN has not been inactive, and numerous joint projects with Australia, Canada, the EEC, Japan and the United States contribute new information regarding the marine environment, the development of resource assessment methodology and pollution monitoring techniques, and the gradual reduction of marine pollution in the region (Chua, 1994). Most of the activities relating to LSMP, however, appear to be taking place either at the national level or in multilateral fora other than ASEAN.

2. ASEAN Dialogue Partners

Although membership in ASEAN is currently limited to seven countries, the organization maintains special relations with a number of non-member countries that are designated as dialogue partners. This structure allows ASEAN to engage in bilateral relationships on issues of common interest. Not all dialogue relationships involve consideration of environmental issues, but those with Japan, Australia and the United States have involved significant environmental components. In this dialogue context, moreover, ASEAN appears willing to negotiate as a bloc, something it seems far less willing to do in other institutional contexts.

Through the dialogue relationship funded by the Environmental Improvement Projects (EIP), the United States may be the most active non-ASEAN member on environmental issues within the regional grouping (ASEAN Standing Committee, 1995). Funded by the US Agency for International Development (USAID), the EIP Steering Committee includes ASOEN, members of both ASEAN and US Chambers of Commerce, and USAID representatives. The workplan for 1995 was restructured to make it consistent with the 1994 Strategic Plan of Action on the Environment and to accommodate requests for projects in each

ASEAN country (ASEAN Update, February 1995). Although USAID has been interested in using EIP funds for policy studies, ASEAN has provided direction to that research, focusing those efforts on ASEAN-wide policy issues. As a result, current plans indicate that the EIP will continue to address national pollution prevention strategies, but will also examine regional and transboundary issues defined by ASEAN.

3. Labelling of Tropical Timber in Austria

In 1992, ASEAN experienced its first real international dispute over the environment. A law passed by the Austrian Parliament in June of that year required all commercial tropical timber and products using such timber sold in that country to carry a label, at least 10 cm by 10 cm, showing the inscription "Made from Tropical Timber" or "Contains Tropical Timber" on a white surface. The so-called "eco-labelling" law went into force on 1 September 1992.

The law came on the heels of the Earth Summit in Rio, which had generated new publicity for environmental issues around the world and also renewed public support for environmental groups. The labelling law was actually a watered-down version of the legislation originally introduced in Austria with the support of these environmental organizations, but its intent was clear: to make consumers of wood products aware of the perceived connection between their purchases and the destruction of tropical rainforests. As the ASEAN region includes several important timber regions and logging companies, the new law was perceived as a threat to the economic interests of member countries. The ASEAN response represents an interesting case study in regional environmental negotiations.

Shortly after enforcement of the timber-labelling law began, Malaysia's opposition to the rule became vocal and vehement. Home to 19.4 million hectares of tropical rainforest, Malaysia has been accused repeatedly of indiscriminate logging practices (an accusation it has repeatedly denied). Regardless of its environmental impact, the timber industry clearly plays an important role in the Malaysian economy; in 1994, early estimates indicated that the value of timber exports would exceed US$5.4 billion (TST, 9 August 1994). Malaysia's strenuous objection to the law is easily understood, given the fact that the list of affected species under the new law included at least 50 % of Malaysia's timber exports (TST, 27 October 1992). Only a month after Austria began enforcing the law, therefore, Malaysia called on ASEAN to take a common stand against the legislation. Importantly, the Malaysian Minister for International Trade

and Industry indicated that this was not just an economic issue, but also one that impinged on the sovereignty of tropical-timber producing countries, which, the Minister said, would be subjected to checks, scrutiny, and supervision by the Austrians (TST, 10 October 1992).

Only two days later, ASEAN announced its first statement on the issue. Emerging from their fourteenth meeting, the ASEAN Ministers of Agriculture and Forestry regretted that the Austrian government had undertaken such action without prior consultation with producing countries. The Malaysian Agriculture Minister made two interesting points: first, that if any labelling law were to be non-discriminatory, it would need to include temperate as well as tropical timber; and second, that the ASEAN ministers viewed the Austrian action seriously and a common stand on the matter should be maintained by the then six member countries so that similar would not be taken by any of ASEAN's other trading partners (TST, 12 October 1992).

At this same meeting, the Indonesian Agriculture Minister suggested that ASEAN find ways that would make Austria reconsider the mandatory labelling law, but suggested it might be sufficient if ASEAN simply explained its forest management policy to the Austrian government. Less than two weeks later, the ASEAN Economic Ministers raised the issue again, calling the Austrian law "discriminatory", but the group did not call for any united action at that time, beyond a note of protest that was sent to Vienna (TST, 24 October 1992).

Only two days later, however, the Malaysian Minister of Primary Industries raised the stakes by issuing a warning to Austria, saying that if the law were not rescinded, Malaysia might organize a boycott of Austrian goods in the region (TST, 27 October 1992). The Minister said that he would personally spearhead the anti-Austrian retaliatory actions by ASEAN if the situation warranted it. One week after this threat, Austria moved to reduce tensions over the timber-labelling law. The Austrian Ambassador in Kuala Lumpur was quoted as saying that his government was willing to try to find a solution to Malaysia's objection, and that he hoped the controversy would not lead to Malaysia carrying out its threat to organise a boycott. The Ambassador stated that "any law can be amended and reviewed and even annulled if found to be unsuitable", but he also indicated that this would take some time to go through the Austrian political system (TST, 1 November 1992).

Although the threat of the ASEAN boycott was neither rescinded nor acted upon, Malaysia continued to intensify pressure on Austria. Less than a week had passed since Austria's conciliatory statements when Malaysia, on

behalf of ASEAN, submitted a protest to the GATT Council in Geneva to express its anger over the law requiring tropical timber labels and to suggest that, given Austria's domestic production of temperate timber products, this law had "ulterior motives" of continuing protectionism. The protest said that the labelling, which would not be required on temperate timber products, would "force consumers to switch to this temperate timber" (TST, 6 November 1992). Malaysia did not, however, file an official complaint to the GATT Council – such an action would have led to a ruling by the body on the consistency of the Austrian law with GATT regulations.

Malaysia's failure to file such a complaint implied that it hoped the dispute could be settled through bilateral negotiations. Those hopes were fulfilled five months later, when Austria revoked the law requiring the labelling of tropical timber. At the same time, however, a new law was passed that called for the creation of a quality mark for timber and timber products from sustainable exploitation (TST, 18 March 1993). The new law stipulated that the labelling would be decided multilaterally by an advisory board consisting of representatives from Austrian ministries and from international environmental protection agencies.

This case represents an unusual example of ASEAN engaging another country in protracted "negotiations" outside the ASEAN dialogue context. These negotiations produced two important results. First, the negotiations accomplished the immediate objective of forcing Austria to rescind its initial legislation and replace it with a law that was more acceptable to the timber-exporting countries in ASEAN. Second, the negotiations made a statement that ASEAN is capable of negotiating as a bloc should any other country (or international institution) put forward proposals that run counter to the group's perceived interests.

LESSONS LEARNED

The above consideration of a selection of environmental issues that have confronted ASEAN during the past several years yields several interesting insights about the opportunities for collaboration in the future. First, the negotiation of intra-ASEAN environmental issues has tended to be characterised by low-key and long-term strategies that provide member countries with maximum flexibility to respond independently. Without a doubt, the region's governments are increasingly alarmed by the levels of pollution that rapid economic growth has generated (*Far Eastern*

Economic Review, 5 March 1992). Moreover, they have already experienced how problems in one country can affect living conditions in its ASEAN neighbours. As a result, it is likely that ASEAN's profile on environmental issues will continue to grow. The recent adoption of the ASEAN Cooperation Plan on Transboundary Pollution provides confirmation of this trend. ASEAN's involvement in intra-regional issues, however, will likely remain constrained for some time by the nature of the organization, which continues to emphasize coordinated independent action over collaborative interventions and consensus over conflict resolution. As a result, difficult issues that arise within ASEAN may be deferred, as in the case of the harmonization of environmental standards, which was envisaged in the Plan of Action on the Environment in 1994 to be complete by the year 2010.

In the future, however, member countries may pursue such issues more aggressively within the ASEAN institutional structure. As members' economies become increasingly connected through AFTA-led liberalization, issues such as the internal harmonization of standards may be brought back onto the agenda. The Mercosur bloc in South America found that economic integration introduced dynamism into the environmental agenda (Tussie and Vásquez, this volume). While member countries may prefer to avoid contentious issues, they may well find that increasing interdependence will make this strategy increasingly inappropriate in the future.

Second, when difficult or potentially divisive issues arise, ASEAN members are likely to continue the strategy of seeking solutions either through bilateral agreements or in multilateral organizations other than ASEAN. Various agencies within the United Nations appear to have been a particularly conducive setting for such environmental issues in the past, and it appears that ASEAN has now attained a level of resiliency that prevents the diplomatic backlash of raising such disputes in other fora from affecting their ability to continue friendly relations within ASEAN confines.

This tendency to use other international fora to settle differences, however, reduces the ability of ASEAN to present a common negotiating position within those same structures. For example, the emergence of APEC as an important regional institution has been seen by some as an opportunity for ASEAN to flex its collective negotiating muscles. An APEC Environment Policy Study Group is currently being established, and the connection between trade and the environment certainly will be on the agenda. Past experience suggests, however, that ASEAN will decline the opportunity to engage in such environmental discussions as a bloc –

rather, it is likely that ASEAN member countries will use such a study group as an opportunity to pursue independent, and perhaps conflicting, agendas.

Third, the record of recent discussions and negotiations concerning environmental issues indicates that it is unlikely that ASEAN will produce NAFTA-like accords in the near future, not because of differential standards among member countries, but because institutions for bilateral or multilateral enforcement simply do not exist in the region. Where political will to enforce domestic regulations is absent, ASEAN is not designed to provide added impetus for reform within these member countries; indeed, member countries preserve the solidarity of the organization by using other institutions to resolve such differences. Moreover, the country with the most stringent environmental regulations (and, hence, the one most likely to benefit from stricter enforcement elsewhere) is Singapore, but Singapore is also one of the most outspoken critics in the region of international interference in domestic policies.

Fourth, mechanisms to link environmental issues in ASEAN to foreign direct investment (FDI) are unlikely to generate enthusiasm from any member state. While speedier harmonization and stricter enforcement of national environmental regulations might improve Singapore's competitiveness for FDI relative to other ASEAN members, its strategy on such issues remains one of allowing other members to set their own pace of development and environmental improvement.

Fifth, recent experience indicates that ASEAN has the ability to play a role in global environmental negotiations, but the range of issues on which such cooperative action is possible is limited by the fact that the national interests of all member countries are not always identical. ASEAN's international influence has grown along with the size of its economies, and the members' solidarity on issues enhances the ability of ASEAN to represent them. Moreover, leaders in several ASEAN countries (most notably Singapore, Malaysia and, at times, Indonesia) have offered themselves as spokespersons for interests shared by other developing countries outside ASEAN, as well. By taking positions in this manner, ASEAN may assume additional influence in international fora.

However, such an influence is limited to some extent by the diversity of the organization and its insistence on agreement and consensus. To negotiate effectively at the international level, the issue must not be solely one of extreme importance to at least one ASEAN nation but also must not go against an important interest of any other member country. These two conditions partly explain ASEAN's ability to play only a rather limited

role in the unfolding development of APEC's trade liberalization efforts. In this context, the different positions held by ASEAN member countries on a range of non-environmental issues may make it very difficult for the organization to articulate strong negotiating positions on environmental issues. Further, as membership of ASEAN grows, adding not only new but more economically diverse countries, meeting the latter condition may be increasingly difficult.

Sixth, ASEAN may have its greatest ability to negotiate internationally when dealing with individual non-member countries. Certainly, the case of Austria's timber-labelling law demonstrated that ASEAN as a bloc can enter international negotiations from a position of strength that no single member might attain. And while this example comes from the organization's dispute with a rather small country, their success in influencing the terms of cooperation with other Dialogue Partners, which include rather large countries, suggests that the regional bloc provides some leverage in this type of bilateral negotiation. This type of influence, however, also requires unanimity among ASEAN members, and the scope of environmental issues on which all ASEAN members agree remains to be defined.

CONCLUSION

The record of ASEAN over the past three decades also represents an excellent example of the creation of an effective organization that encompasses a set of very different countries and cultures. For the first two decades, the regional bloc was defined by its shared security interests. Even though those interests remain a vital part of the organization's raison d'être, the vision for ASEAN has expanded in scope to include a much broader range of concerns. In this context, the consideration of environmental issues by ASEAN can be seen as a step in the process of its development. While ASEAN has begun the construction of a new understanding for regional environmental issues, these issues have served to further the process of regional regime building in the region.

ASEAN's accomplishments in terms of dealing with environmental concerns may not appear particularly extensive at this time, but this should not be a ground for pessimism about possible achievements in the future. Despite official involvement in environmental issues since 1978, serious institutional commitment by ASEAN to these issues is much more recent. The development of processes to address regional environmental concerns suggests that ASEAN is now far better prepared to tackle these issues in the future.

Collaborative efforts will continue to face difficulties. Member countries are still very different from each other, and in this context ASEAN's commitment to the process of decision by consensus will tend to generate least common denominator outcomes within the region, and will reduce the scope for united positions in negotiations with non-member countries. But the success of past efforts and the development of institutional structures within ASEAN suggest that these difficulties may gradually become less important in the future. Prospects appear to be good for increasing cooperation on environmental issues. And while progress on such cooperation has been rather slow in the past, regional economic integration may stimulate a more rapid pace in the future.

13 The Environment and International Trade Negotiations: Open Loops in the Developing World

Diana Tussie

The major dilemma underlying the international environmental agenda is how to get developing countries into as tidy a loop as possible. The shrill cries and the asymmetric expectations, which in so many respects had somehow been watered down in other areas of international relations, have arisen again with vigour. But the roles have been switched. Developing countries are no longer apprehensive about the implications of freer trade. Marching on this tension, the issue of environmental sustainability and, within it, the trade and environment nexus, will play an increasingly prominent role in the years immediately to come.

Even a moment of reflection will illustrate that the connection between trade and the environment runs in both directions. Trade policies transmit both negative and positive impacts. Openness has been seen to induce environmental upgrading in developing countries. At the same time, widespread trade liberalization and accelerating rates of growth have precipitated increased pressure on natural resources, be they nationally owned or internationally shared. Environmentalists and free traders sitting on different sides of the argument have each gathered evidence proving their case. Efforts to move beyond arguments and evidence to concrete policy still face many hurdles. Dialogue and negotiation are complicated by the sheer diversity of issues, which range from animal welfare through sustainable fishing rights to local polluting practices of export firms.

Although the broad question of the effect of trade on the environment is like disentangling the effect of growth from environmental issues, some questions are still worth asking in order to see when and where mitigating interventions may be necessary. Exactly what is not working and why isn't it? These questions have guided our research on what needs to be changed in order to achieve a more level playing field that transparently involves all

actors. In response, these conclusions elaborate on two themes guided by the first-order fact that the core tension in the trade and environment agenda is the difference between developed and developing countries. The first theme to stress is that because both development and the environment are about malfunctioning markets, leaving environmental protection to be governed strictly by market forces is at best inappropriate. This is not to say that market policies are not conducive to proper environmental management, but that they need to be complemented with other policies and incentives once the transition from a closed to an open economy is left behind. Without these supplementary policies, fast export growth can exacerbate poor conservation of natural resources. The second theme considers the hypothesis that regional agreements in the developing world are stepping stones to global cooperation, and concludes that hopes in this direction are still unfounded – which means that pressures on the WTO to deal with environmental issues are not being relieved. The need for an environmental body that will manage international concerns is then raised.

CAN TRADE GROWTH NEVER BE BLAMED?

Less than a decade ago, the scepticism against the "greening" potential of trade- and export-oriented growth was widespread. Early studies at the World Bank and the GATT found that after a first negative impact on the environment, improvement and upgrading followed trade liberalization (Low 1992; Anderson, 1992b). With strong curbs on imports and relatively little emphasis on exports, firms have few incentives to increase efficiency or achieve international quality standards. These findings changed the intellectual climate very much in favour of trade liberalization, and trade-related growth ceased to be blamed for environmental degradation.

The contribution of these studies is that they focused on issues of first-order importance. Studies showed not only that environmental improvement is more likely with open than closed markets, but also that enhanced market access proves to be particularly effective in inducing countries to upgrade standards. Export markets catalyse locally-based industrial exporters to leave behind "dirty" production methods and to embrace higher environmental standards. Various means of market-oriented "encouragements" operate – an attractive option, not only because it is a positive incentive, but also because it improves growth

prospects and thereby lays a sound foundation for better long-term management. Therefore, there is little doubt today that openness per se can pave the route to environmental upgrading.

Trade has acted as a propagator of standards in two ways: through technology transfer and by consumer-driven demands for environmentally friendly standards. Such market-pushed process standards do not need government intervention. Industrial firms in developing countries adopt them either through technological developments or as foreign market pressures induce internalization.

But the determination to follow that paved route to better management cannot be taken for granted. Given the diversity of circumstances and of the stimuli triggering better care for the environment, one may doubt blanket claims regarding the unambiguously good implications of trade liberalization and export growth:

> Such an agnostic approach is in the spirit of the line of economic thought which teaches that private profit seeking behaviour may lead to socially desirable results, but only if certain conditions are met, conditions which involve both political and economic variables, and whose presence in developing countries can neither be taken for granted nor regarded as impossible. (Diaz Alejandro, 1983: 27)

Openness in trade and investment, though conducive to rapid growth, provides a first spurt to environmental improvement, but does not become a continuously faithtul ally of the environment. When there is no such transition, or once the transition is left behind, rapid export growth has very often come at the expense of the environment in many developing countries, and has generated negative effects such as local air and water pollution. It is known that even without the need to abandon modern orthodox methodology and findings, under certain assumptions trade and growth can be shown to be immiserizing for a country under some circumstances. True, the major message of these models is that while government actions are required to correct distortions, and thus laissez-faire is out, it is highly unlikely that first-best policies would involve trade restrictions, so free or freer trade is still desirable. But if first-best policies are not feasible, a great deal of intervention may be needed and can be justified, depending on one's judgement on particular constraints and willingness to accept non economic considerations. Judgement will differ as to whether one can expect the required skills from the civil servants in charge of these matters.

The analysis of trade and the environment in the context of specific circumstances at sector level, should clear up some of the mist. Strategic behaviour, market failures, political conditions and other non-economic reasons come into play. An opening based on exhaustible natural resources, whether rich soil, forests or fish, may make the country very well off today, but may induce rent-seeking behaviour that, when the fish and the oil run out, will make the country sink back into poverty, perhaps worse than that pre-bonanza. Judicial inter-temporal trade among generations must accompany such trade opening – but again, because it cannot be taken for granted, care must be taken with the prescription. At this point, fresh questions must be asked of the state of openness. The way to microeconomic and more detailed explorations of the links between trade and the environment are now possible, replacing the older view with simpler answers such as "trade is good" or "trade is bad". To extrapolate from Diaz Alejandro's conclusion in another context, "It all depends (to the dismay of the lazy, the impatient or the seeker of mass-mobilizing slogans) on the circumstances in which the trade takes place" (Diaz Alejandro, 1983).

Trade liberalization by itself, while an important first step, is at best an incomplete instrument. It is a means to reduce distortions but it must be complemented by effective regulatory practices. Trade and environmental reform must go together, as the literature on piecemeal tax reform suggests. These are open loops in most if not all developing countries.

LOOPHOLE ONE: MARKET INCENTIVES TO ADDRESS SUSTAINABILITY?

The adoption of many pro-market policies in the developing world, such as clarifying property rights, helps to improve resource use and contribute to better environmental management. But many rapidly growing countries have taken the approach of growing first with little or no consideration for negative externalities and letting the environment take care of itself – later. When sources of environmental degradation, with under-priced resources (forests, fish, water or air) are not adequately addressed then rapid export growth worsens the problem.

To put it bluntly, if unsustainable practices are widespread, it is naturally foolish to blame the freeing of trade for bad conservation. In the same vein, restricting trade without touching practices will be an

expensive and probably short-lived way to improve conservation. Yet the increase in trade can in turn increase the incentives to continue the bad practices. As strategic trade models suggests, countries can make use of their natural resources in a bid to keep costs low and export environmentally intensive products (Sen, Chapter 7 in this volume) It is at this point that markets are at best flawed, and at worst counterproductive. In crucial areas, public polices, such as imposing taxes and enforcing standards, providing incentives for investing in clean technology and improving production methods, are necessary. In short, the study of the political economy of special-interest groups and government–societal relations are as pertinent to the trade and environment debate as are conventional economic issues of negative externalities.

Empirical studies, at a sector level (Markandya, 1994a) have been able to carry the debate a step further. The focus on sector behaviour has implications for policy responses. In particular, it raises the question of whether, and if so when and where, mitigating policies are necessary. These are proving to be a big loophole in developing countries.

How harmful a given sector is to the environment naturally plays a part in determining the cost of adaptation, which in turn affects the propensity of firms to take up internalization of their own free will. The smaller is the cost or the easier it is to recoup it then the greater will be the inclination to sounder practices. In many industries, the costs of upgrading seem to have diluted effects on international competitiveness (Low and Yeats, 1992; Markandya,1994a). The evidence that "dirty" industries are not migrating to countries with lower standards shows the marginal importance of environmental standards in locational decisions. The point here is that the market will not necessarily operate against internalization, or at least not in all phases of production. If cost increases can be absorbed by firms themselves, or passed on to consumers, then competitiveness may not be harmed. In such circumstance, cost internalization can be undertaken without fear of losing market shares.

Moreover, some environmental upgrading leads to private gains. A school of thought maintains that high levels of environmental protection may in fact enhance competitiveness because it leads to innovation and efficiency. Firms in this category will pay attention to the quality of their products, to the technology used and to the environmental concerns of customers; they can thus reap so called first-mover premiums. At that level of competition, it is reasonable to regard the conflict between environmental regulation and competitiveness as a false dichotomy. Pollution is considered to be a form of

waste and inefficiency, and when firms become aware then innovation can reduce or completely offset the costs of adaptation. But only market leaders can be attuned to standards, and even contribute to set them and spread them internationally. The standard-setting process can be easily captured by firms and can become a source of rent-seeking. In essence, environmental protection becomes the basis of strategic behaviour, collusive outcomes and increased entry barriers.

There are indications in several developing country sectors of a dual pattern of production, one that is environmentally sounder for export markets and another that remains more pollution-intensive, catering to the domestic or the regional markets (Motta Veiga, Chapter 4 in this volume; Bethlehem, Chapter 5 in this volume). Broadly speaking this is also related to firm size. Market leaders are better positioned to adopt more environmentally sound practices, while inward-oriented smaller firms, which tend to have a greater impact on environmental quality, lag behind. The effect of environmental standard-setting in increasing market polarization, both among and within countries, is an area where further empirical research is required if proper mitigating mechanisms are to be designed. Moreover, as developing countries trade more and more with each other, the dual pattern of production can be reinforced, with high-quality environmental standards applied to production destined for OECD countries and lower standards for other countries. This duality also explains why developing countries were split in two broad groups over restrictions included in the Montreal Protocol: inward-oriented countries such as China and India, with large domestic markets and thus relatively unconcerned with market access for their products made with ozone depleting substances (ODS), and outward-oriented countries, such as the ASEAN members, concerned with access to supplies of alternatives to ODS for their export-oriented industries. The concern with access to markets induced export-oriented countries to accept trade provisions and has also affected the speed with which industries adjusted to product characteristics defined by buyer (Krueger, Chapter 9 in this volume).

In the production of natural-resource-based commodities, the market left to itself will be of little help. On one hand, the extraction and harvesting of natural resources have very large and immediate impacts on the ecosystem. On the other, commodities are very price-sensitive. They are heavily dependent on price as a factor of competitiveness. Here, even small differences in internalization are likely to represent a larger portion of production costs. Even free traders will acknowledge that, in the absence of adequate policing, fast export growth can lead to over-exploitation of open-access resources, as pointed out by Sáez (Chapter 2 in this volume).

Without some regulations, strategic behaviour is likely (Sen, Chapter 7 in this volume). This is especially true with natural resource-based production such as with agriculture, fisheries and forestry. In the case of fisheries, evidence speaks for itself. Studies have demonstrated that all major ocean fishing areas presently are being fished at or beyond capacity, and that global per capita seafood supply has declined by 9 % within the past five years (Gutman, Chapter 3 in this volume). The absence of agreed international standards for fisheries will continue to raise disputes at the WTO such as the long-standing one between the US and other countries on tuna fishing and dolphin protection, and a more novel one regarding the use of turtle protection devices for shrimp fisheries.

This dichotomy between the environmental effects of natural resource production versus manufacturing is likely to continue in the near future. Incentives to upgrade are larger and easier in manufacturing. In sum, restructuring left to the market and trade integration has limitations. In the production of commodities, incentives for strategic pricing are likely, and in manufacturing there is a potential to reinforce dual markets: one environmentally friendly and the other non-environmentally controlled. Neither of these situations is enough to improve the national environmental situation. Hence the search to provide other incentives for environmental upgrading.

LOOPHOLE TWO: REGIONAL INTEGRATION FOR GLOBAL COOPERATION?

One hypothesis bounced about is that regional agreements will serve as stepping stones towards global cooperation. A first argument for taking action at the regional level is incentive-based. If one country implements standards unilaterally, it might fear losing competitiveness. A common regional agreement with commitments to act on the environment might reduce this concern. A second argument is that global agreements on the environment seem difficult to achieve. They might take almost forever to negotiate, just like the Uruguay Round. Regional agreements might expedite this process, becoming stepping stones for multilateral agreements. Furthermore, the region commands a much greater sense of collectivity or feeling of identity among participants than does a global institution. The basis then for this argument is based on the hypothesis that regional integration will provide friendly, pressure-free incentives to adopt

environmental practices – that the region may be more efficacious than the nation-state in solving collective action problems If some regional agreements successfully address environmental concerns then it would be easier to achieve global agreements on environmental standards (Hveem, Chapter 8 in this volume).

A review of three examples of regional integration provides, however, some room for scepticism, even including NAFTA in this set of agreements. The US, Mexico and Canada negotiated important aspects of environmental cooperation, and there is evidence that practices have improved in Mexico, their instigators being motivated largely by the opportunity of gaining market access. Yet significant tensions remain between trade and environment within NAFTA, and there is debate about the relative merits of cooperation and sanctions as mechanisms for enforcement. The trade and environment link remains uneasy as control comes down to issues of trade regulation again (Schatan, Chapter 10 in this volume).

Two other examples of regional integration among developing countries show the limitations of this route: the Association of South-East Asian Nations (ASEAN) and the Southern Cone Common Market (Mercosur) in South America. ASEAN gained the diplomatic high ground in 1992, when Austria passed legislation to require a mandatory label on tropical timber, an issue to which ASEAN countries reacted collectively with the veiled threat of a boycott on Austrian goods. It is difficult to foresee a replication of such a reaction. Nonetheless, it highlights the extent to which environmental cooperation in ASEAN is defensive: it is weighted vis-à-vis third countries. As Wiebe (Chapter 12 in this volume) points out, fear of disguised protectionism is paramount, and so ASEAN acts as a single unit in the context of the WTO Committee on Trade and the Environment.

These groupings appear to be the two most cohesive in the developing world, but their contribution to sounder environmental policies is at best debatable. First, both groupings have devoted significantly little time and high-level attention to environmental concerns. Both groups have been slow to move towards any form of harmonization of standards. Trade facilitation remains pre-eminent. Environmental concerns are entertained infrequently by policy-makers at the institutional level, and even then with caution and some reluctance. Second, both regional blocs have institutional histories that reflect structural and attitudinal obstacles that must be overcome before they will be able to play more roles in addressing environmental concerns. Given their interests, it is not surprising to find that neither Mercosur nor ASEAN has yet seriously

considered supranational or even inter-governmental bodies to determine guidelines and enforce compliance. The common ground so far usually appears to be a shaky platform for further positive engagement on environmental upgrading. Taken in isolation from other contextual factors, both ASEAN and Mercosur seem to offer little potential to provide environmental management in their respective regions.

True, such a description may be too static, and rather bleak. Although there is no joint standard setting, neither is there is any evidence of a "race to the bottom" in a competition to attract investment. Both Mercosur and ASEAN are in a state of flux as a result of their respective outer rings and the external context in which they must act. Indeed, in each area broader regional units are in the making – APEC in the Pacific Basin and the Free Trade Area of the Americas (FTAA) in the Western Hemisphere. Each of these emerging broader units will encompass the smaller group under analysis here and no doubt catalyse change, particularly in the case of Mercosur. As the FTAA agenda takes shape, the members of Mercosur will find increasingly that they will need to strengthen their coordination on environmental protection vis-à-vis the United States, the biggest single demandeur in the region.

Although stumbling blocks to such an expanded role can be seen, they do not represent insurmountable obstacles. They would require, however, significant changes in the way that the leaders of member states view the process and the priorities of economic development, regional integration and the environment. In the meanwhile many non-state actors are learning to make their case in international fora after exhausting domestic channels. The result is an international policy making process that is fast outgrowing its institutional channels. However, if South America continues to diversify its exports towards its neighbours, the weight of Northern-based demands will begin to diminish as a decisive element in firms' export strategies.

This probability of increased regionalism and interdependence among developing countries is not particularly positive in terms of environmental upgrading, as less influence from Northern consumer demands reduce incentives for greening. Rather, adaptation to the new environmental requirements will depend more on local societal interests and priorities than on access to Northern markets. Therefore, although regional integration may in some circumstances serve as stepping stones for global arrangements, evidence suggests that progress in this direction is not unambiguous. And many non-environmentally friendly practices will slip through the loopholes.

CLOSING LOOPS?

One of two messages raised by this book is that it is difficult to untangle the consequences brought about by a first spurt of liberalization, from the effects of the new incentives provided by international markets. The above discussion shows that at certain points open markets have been able to provide incentives for environmental upgrading, but the liberalization of trade has varying implications and success rates in ecological control, depending on the sector, country or region affected. In addition, environmental upgrading left to the market forces alone will reflect the interests of a Northern-biased agenda. In some instances, the liberalization of trade increases incentives for exporters to Northern markets to improves their practices, but the myriad of smaller firms producing for domestic markets slip through a trade loophole. Yet the cumulative effect of large numbers of small, dispersed firms may be more significant and less readily controllable through international incentives.

Similarly, regional groupings among developing countries are lacking as environmentally-friendly building blocks. As developing countries trade more and more with each other, the forcefulness of Northern markets will be reduced, and two different markets with different environmental rules may emerge.

Nonetheless, the issue of standard setting merits attention. Production standards preferred abroad may be of no use to environmental management in the producing country, and when it all comes together the conservation objective may be missed. For example, Bethlehem (Chapter 5 in this volume) has reported cases of eco-labelling programmes based on the preferences prevailing in the importing country leading to eroding good conservation practices in producing countries.

In the process of adopting standards, domestic producers have a greater say than foreign producers, and in certain cases they can hijack the standard-setting operation together with the legitimate concerns of environmental groups. Standards are, after all, barriers to entry. Incumbent firms may increase their market power by raising the costs of compliance, possibly even inducing exit and/or inhibiting new entrants. Preferences and priorities may differ from one importing country to the next; regulations may even be incompatible with each other. Their very proliferation is an entry barrier.

The International Organization for Standardization (ISO) provides yet another way in which standards are quietly segmenting markets. While these business agreements may help mitigate some environmental externalities, they may easily create other distortions. While ISO standards are voluntary,

they are often made mandatory by member countries, or in practice become mandatory, by becoming commercial standards. International firms will press for cartel-like solutions, which may over- or under-shoot the socially optimal level of protection (Motta Veiga, Chapter 4 in this volume). Except for the biggest among developing countries such as Brazil or Korea, few have a significant role in the adoption of standards at the ISO. For most developing countries, participation in the ISO standard-setting process is limited to discussing those standards agreed upon by larger countries and passed on to them. Although the ISO is a voluntary scheme, the road to market access is greatly influenced by standards emanating from it.

A second message of this book is that the room for strategic competition is not negligible, and thus disputes on sustainability cannot be wished away. Fisheries are prone to continuing disputes at the WTO, be they over-protection of dolphins or of turtles. Agreed international standards on sustainable fisheries might prevent these disputes from rising.

If, on one hand, neither market forces nor regional agreements seem to have relieved much of the pressure on the WTO, then, on the other, the relationship between the ISO and the WTO is itself an area that needs to be worked out. The WTO will have to take up the issue to reduce the risk of nationally defined standards becoming an entry barrier. The ISO process, being voluntary, has no ancillary dispute resolution mechanism, and so even over industrial standards disputes can be expected to flare up at the WTO.

But the WTO has no mandate for matters concerning sustainable practices and cannot be required, without becoming a new organization, to build up the necessary competence and expertise to establish the legitimacy of global environmental risks and arbitrate in these matters. Such competence must come from other organizations.

The concluding chapter brings together all the strands, and points out that openness has different implicatons in industry and agriculture. However, environmental upgrading left to market forces will reflect a Northern-biased agenda. As developing countries trade more and more with each other, two different markets with different environmental rules may emerge. In order to avoid this development, consensus at the international level and adequate policy processes at the national level are required. Access to Northern markets as an incentive to upgrade neglects domestic environmental priorities. The international and domestic environmental agendas must therefore be compatible. The duality created both within and among countries by environmental standards suggests the inadequacy of trade incentives in genuinely addressing the concerns of sustainable development. The final chapter reinforces the need for environmental pressures on international trade to be resolved. It also underlines the inadequacy of current instruments in addressing this

antagonism, specifically highlighting the absence of a trade–environment dispute resolution mechanism. This institutional void may suggest a need for a multilateral and transparent body dedicated to combating cases in which the trade–sustainability tension emerges. Although this institutional void may suggest a need for a multilateral and transparent body dedicated to combating cases in which the trade–sustainability tension emerges, environmental management does not lend itself to purely hierarchical interventions. It depends partially on a grand strategy but more crucially on the workings of different levels of authority, of incentives and procedures, and without these in place at the appropriate level, a great deal of internalizing will slip through the loopholes.

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This book is the first assessment of the trade and environment debate as viewed by a team of researchers in developing countries. It covers international negotiations on the environment and analyses how these affect developing country concerns. It takes two sectors of crucial interest to developing countries – forestry and agriculture – and dissects the trade and environment linkages. It then reviews the contribution made by the North American Trade Agreement to environmental management in Mexico and the value added by Mercado Común del Sur (MERCOSUR) and the Association for South-East Asian Nations (ASEAN), two developing country integration schemes, to the protection of the environment in member countries.

A case-study on South Africa surveys exporters' concerns with environmentally motivated measures in international markets and another chapter reviews the contribution of voluntary market initiatives, such as ecolabelling and international standards.

As a summary of the current situation, the editor concludes that the existing lack of structural coherence does not 'loop' developing countries into environmental management, and that a new organizational configuration is required to get them back in the 'loop'.

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